



**FISCAL YEAR 1998–2000
ENVIRONMENT, SAFETY AND HEALTH
EXECUTION AND BUDGET REPORT**

June 1999

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LIST OF ACRONYMS

AL	Albuquerque Operations Office	Fernald	Fernald Environmental Management Project
ANL-E	Argonne National Laboratory-East	FETC	Federal Energy Technology Center
ANL-W	Argonne National Laboratory-West	FFTF	Fast Flux Test Facility
BGRR	Brookhaven Graphite Research Reactor	FM	Office of Field Management
BNL	Brookhaven National Laboratory	FY	fiscal year
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	GC	Office of General Counsel
CFCs	chlorofluorocarbons	GO	Golden Field Office
CFR	Code of Federal Regulations	Hanford	Hanford Site
CH	Chicago Operations Office	HEU	highly enriched uranium
CR	Office of Chief Financial Officer	HFBR	High Flux Beam Reactor
CSO	cognizant secretarial office	HFIR	High Flux Isotope Reactor
D&D	deactivation and decommissioning	HLW	high level waste
DEAR	Department of Energy Acquisition Regulation	HQ	Headquarters
DNFSB	Defense Nuclear Facilities Safety Board	ID	Idaho Operations Office
DOE	U.S. Department of Energy	INEEL	Idaho National Engineering and Environmental Laboratory
DP	Office of Defense Programs	ISM	integrated safety management
EBR	Experimental Breeder Reactor	ISMS	integrated safety management system
ED	Office of Economic Impact and Diversity	ISO	International Organization for Standardization
EE	Office of Energy Efficiency and Renewable Energy	KCP	Kansas City Plant
EH	Office of Environment, Safety and Health	LANL	Los Alamos National Laboratory
EI	Office of Energy Information Administration	LBNL	Lawrence Berkeley National Laboratory
EIS	Environmental Impact Statement	LLMW	low level mixed waste
EM	Office of Environmental Management	LLNL	Lawrence Livermore National Laboratory
EML	Environmental Measurement Laboratory	LLW	low level waste
EPA	U.S. Environmental Protection Agency	M&I	management & integrating contractor
ERMC	environmental restoration management contractor	M&O	management & operating contractor
ES&H	environment, safety and health	MA	Office of Management and Administration
FE	Office of Fossil Energy	MD	Office of Fissile Material Disposition
FERC	Federal Energy Regulatory Commission	Mound	Miamisburg Environmental Management Project
		MPIS	management plan information system

NE	Office of Nuclear Energy, Science and Technology	RCRA	Resource Conservation and Recovery Act
NEPA	National Environmental Policy Act	RFETS	Rocky Flats Environmental Technology Site
NN	Office of Nonproliferation and National Security	RL	Richland Operations Office
NOSR	Naval Oil Shale Reserve	ROD	Record of Decision
NPDES	National Pollutant Discharge Elimination System	RW	Office of Civilian Radioactive Waste Management
NRC	U.S. Nuclear Regulatory Commission	SC	Office of Science (formerly Energy Research)
NREL	National Renewable Energy Laboratory	SLAC	Stanford Linear Accelerator Center
NTS	Nevada Test Site	SNL	Sandia National Laboratories
NV	Nevada Operations Office	SR	Savannah River Operations Office
OAK	Oakland Operations Office	SRS	Savannah River Site
OH	Ohio Operations Office	SWMU	solid waste management unit
OR	Oak Ridge Operations Office	TFTR	Tokamak Fusion Test Reactor
ORISE	Oak Ridge Institute for Science and Education	TJNAF	Thomas Jefferson National Accelerator Facility
ORNL	Oak Ridge National Laboratory	TPA	Tri-Party Agreement
ORR	Oak Ridge Reservation	TRU	transuranic
OSHA	Occupational Safety and Health Administration	TRUPACT	transuranic package transporter
OU	operable unit	TSCA	Toxic Substances Control Act
Pantex	Pantex Plant	UIC	underground injection control
PCB	polychlorinated biphenyls	UNICALL	Unified Field Budget Call
PNNL	Pacific Northwest National Laboratory	UST	underground storage tank
PO	Office of Policy, Planning, and Program Evaluation	WIPP	Waste Isolation Pilot Plant
PPPL	Princeton Plasma Physics Laboratory	WT	Office of Worker and Community Transition
		WVDP	West Valley Demonstration Project
		ZPPR	Zero Power Physics Reactor

EXECUTIVE SUMMARY

Environment, Safety and Health Funding and Issues FY 1998 – FY 2000

Overview

Effective planning for environment, safety and health (ES&H) activities has been a priority for the Department of Energy (DOE) for a number of years. Emphasis on planning has been directly responsible for better ES&H performance while reducing overall expenditure (less duplication of effort, less rework, greater attention to meeting performance expectations). It is now possible to execute or implement plans to further enhance DOE and contractor accountability for ES&H performance. The Secretary of Energy recently reaffirmed the commitment to strengthen implementation of ES&H programs through Integrated Safety Management (ISM).

A variety of means have been used to communicate DOE's efforts. For example, the budget requests to Congress, while focused on program accomplishments, showcase DOE's priority to improve ES&H performance. However, the budget requests do not document the efforts to ensure that ES&H-related commitments are fully reflected in task-specific funding plans. The ES&H Execution and Budget Report is intended to accomplish this objective.

The Office of Environmental, Safety and Health (EH) issues this annual Report on DOE-wide ES&H management. This Report provides information on ES&H funding and related issues in support of implementation of ISM. Although it does not represent a comprehensive hazard analysis, or provide a compendium of all ES&H risks present within DOE, it does describes the major hazards and ES&H risks being addressed in the budget request, as well as ES&H performance commitments included in site execution work plans. This Report is a useful complement to the budget data in two respects:

1. Budget data from each site is analyzed to identify which ES&H-related activities are planned for funding and which are not; and
2. Budget data is analyzed to assess trends and progress in meeting ES&H commitments.

This Report summarizes the major ES&H funding included in work plans and the resources DOE plans to devote to operating contractor operations to help ensure that work is conducted in a

safe, healthy, and environmentally sound manner in Fiscal Year (FY) 2000. The funding identified for FY 1998 through FY 2000 in the tables in this section are derived from ES&H needs and priorities identified by DOE's operating contractors during the FY 2000 budget formulation process. The ES&H commitments that will be described in the body of this report were also reported by the departmental sites in their ES&H commitment affirmation letters to their line cognizant secretarial offices (CSOs). Although the commitments are summarized in this report, actual responsibility for tracking completion of these commitments is a line responsibility accomplished by DOE Field activities.

Figure ES-1 depicts the DOE-wide history of planned and actual safety and health expenditures for the period of 1995 through 1998, and estimates for FY 1999 and FY 2000. The data is derived from the various annual reports of DOE-wide safety and health activities, which use data from the ES&H Management Plan Information System (MPIS) database.

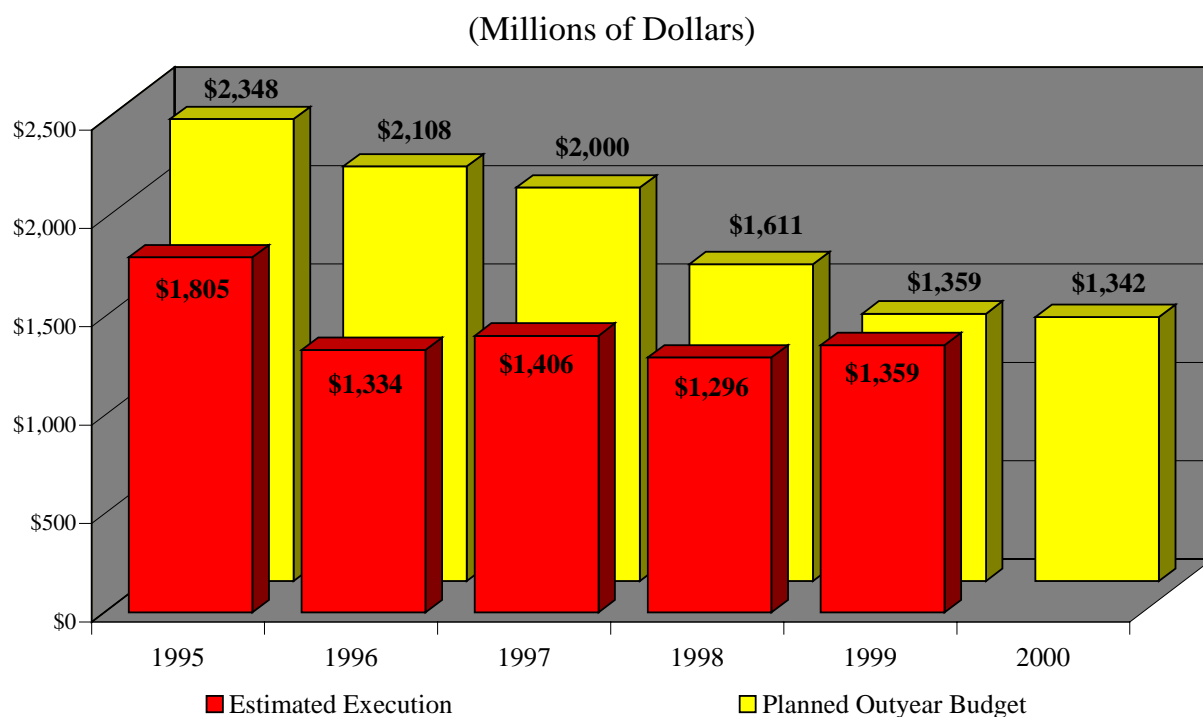


Figure ES-1. Safety and Health Budget History

Table ES-1 provides a breakout of planned safety and health expenditures by organization (CSO FY 1998 through FY 2000 safety and health budget targets). The FY 1998 and FY 1999 funding amounts are estimated actual expenditures, while the FY 2000 funding reflects the safety and health funding in budget plans. Approximately \$1.3 billion is planned for safety and health activities as part of DOE's FY 2000 Congressional budget request. This is about \$1 billion less than the amount deemed necessary only 5 years ago. At the same time, the ES&H management planning activity has enabled DOE to reduce indirect costs (of which ES&H is a large part) in a rational manner versus arbitrary cuts.

Table ES-1. FY 1998–2000 DOE Safety and Health Resource Requirements (\$ Millions)

Cognizant Secretarial Office	FY 1998 ¹	FY 1999 ¹	FY 2000 ¹
Defense Programs	\$381.6	\$449.0	\$446.1
Environmental Management	\$651.8	\$634.1	\$617.4
Science	\$151.1	\$151.2	\$153.7
Fossil Energy	\$8.3	\$10.9	\$10.7
Nuclear Energy, Science and Technology ²	\$23.8	\$27.6	\$28.3
Energy Efficiency and Renewable Energy	\$4.7	\$4.9	\$5.0
Civilian Radioactive Waste Management	\$6.8	\$9.2	\$7.9
Management and Administration	\$1.1	\$1.4	\$1.4
Other Cognizant Secretarial Offices ³	\$66.6	\$71.0	\$72.2
Total Planned	\$1,295.8	\$1,359.3	\$1,342.7

¹ Total safety and health funding includes both direct and indirect funds.

² The funding for the Office of Nuclear Energy, Science and Technology (NE) does not include funding provided through the Office of Naval Reactors (NE-60), except for a portion of the funding associated with the Advanced Test Reactor at the Idaho National Engineering and Environmental Laboratory (INEEL).

³ Funding requested under other CSOs includes: Offices of Chief Financial Officer (CR); Economic Impact and Diversity (ED); Environment, Safety & Health (EH); Energy Information Administration (EI); Field Management (FM); Fissile Material Disposition (MD); Nonproliferation and National Security (NN); Policy, Planning & Program Evaluation (PO); and Worker and Community Transition (WT).

Table ES-2 provides a similar breakout for environmental activities (the CSOs' FY 1998 through 2000 environmental budget targets), excluding the Office of Environmental Management (EM). Again the FY 1998 and FY 1999 funding amounts are estimates of actual expenditures while the FY 2000 funding reflects environmental funding in the FY 2000 budget plans. Approximately \$334 million is planned for non-EM environmental activities as part of DOE's FY 2000 Congressional budget request. This level of planned expenditures has been essentially constant the past 5 years in spite of increasing commitments for work.

Table ES-2. FY 1998–2000 DOE Environmental¹ Resource Requirements (\$ Millions)²

Cognizant Secretarial Office	FY 1998	FY 1999	FY 2000
Defense Programs	\$131.6	\$204.2	\$199.9
Science	\$62.4	\$61.2	\$52.1
Fossil Energy	\$12.4	\$13.3	\$11.0
Nuclear Energy, Science and Technology ³	\$5.7	\$9.5	\$11.2
Energy Efficiency and Renewable Energy	\$1.4	\$1.5	\$1.4
Civilian Radioactive Waste Management	\$28.0	\$26.3	\$23.8
Management and Administration	\$0.0	\$0.0	\$0.0
Other Cognizant Secretarial Offices ⁴	\$37.5	\$35.6	\$34.9
Total Planned	\$279.0	\$351.6	\$334.3

¹ Total environmental funding includes both direct and indirect funds.

² The Office of Environmental Management (EM) resource requirements are excluded from this table.

³ The funding for the Office of Nuclear Energy, Science and Technology (NE) does not include funding provided through the Office of Naval Reactors (NE-60), except for a portion of the funding associated with the Advanced Test Reactor at the Idaho National Engineering and Environmental Laboratory (INEEL).

⁴ Funding requested under other CSOs includes: Offices of Chief Financial Officer (CR); Economic Impact and Diversity (ED); Environment, Safety & Health (EH); Energy Information Administration (EI); Field Management (FM); Fissile Material Disposition (MD); Nonproliferation and National Security (NN); Policy, Planning & Program Evaluation (PO); and Worker and Community Transition (WT).

The information in Tables ES-1 and ES-2 represents a summary of data from individual site submittals. Both funded and unfunded ES&H-related activities are reported in a standard format. The data may be used to examine individual tasks, groups of similar tasks, or to present results of DOE-wide efforts (as in Figure ES-1, and Tables ES-1 and ES-2). The site data summaries have been the primary source of budget issues used by the Office of Environment, Safety and Health (EH) in discussions with the CSOs during the corporate budget review phase and later Office of Management and Budget (OMB) and Congressional Phases of the budget decision process.

Program Office Environment, Safety and Health Issues

The DOE headquarters program office that provides the majority of funding to a given site, and is assigned “landlord” responsibility for that site, compiles data from the site for the line item as shown in Tables ES-1 and ES-2. Moreover, because each program office has a set of distinct mission assignments (e.g., produce new warheads for use in the nation’s strategic stockpile of weapons), the set of ES&H-related activities also tends to be focused around a set of strategic

missions or performance objectives. ES&H-related issues most important to the three major program offices are summarized in the following:

Office of Defense Programs

1. Consistent with the Record of Decision in the Stockpile Stewardship and Management Programmatic Environmental Impact Statement and related National Environmental Policy Act (NEPA) documents, consolidation and modernization of the nuclear weapons complex requires construction of many new facilities and upgrades to a number of existing facilities. ES&H considerations need to be included in all phases of bringing these new and upgraded facilities on-line. These phases include initial mission planning and ensuring ES&H and human factor considerations are included in the facility design, selection of the construction contractor, actual construction of the facility, and then bringing the facility on-line. The adequacy of forward planning for each of these phases is a line responsibility, consistent with each contractor's Integrated Safety Management System (ISMS).
2. Nuclear weapons contract consolidation has been deferred pending a further analysis of ways to improve DOE's own management organization and structure. However, if a consolidated contract again becomes a possibility, the structure and incentives of any new contract arrangement need to be centered around site- and facility-specific missions, and must ensure that DOE's expectations for integrated safety management are met.
3. DOE's implementation schedule in response to Defense Nuclear Facility Safety Board (DNFSB) Recommendation 97-2, "Continuation of Criticality Safety," requires substantial reallocation of funding to further strengthen DOE's criticality safety program. Funding to support the completion of Departmental commitments has been included in the FY 2000 budget request. Potential reallocation of resources may compromise Defense Program (DP) ES&H commitments.

Office of Environmental Management

1. There remains a large quantity of nuclear materials being stored in unstable configurations. Continued stabilization of nuclear materials (i.e., spent nuclear fuel, plutonium, uranium, neptunium, americium, curium) is planned at the Hanford Site, Rocky Flats Environmental Technology Site (RFETS), Savannah River Site (SRS), Idaho National Engineering and Environmental Laboratory (INEEL) and the Oak Ridge Reservation (ORR). The present plans require the shipment of plutonium-bearing materials from RFETS to SRS.
2. Disposition of contaminated nuclear facilities, including the deactivation, decontamination and decommissioning of facilities at Hanford, ORR and RFETS, and the reuse of facilities involve new challenges. Reuse of facilities, such as storage of SNM at K reactor at Savannah River or temporary TRU-mixed storage at sites, should consider hazards to co-located workers. None of these challenges goes beyond present DOE experience.

3. High-level waste (HLW) management, including continued characterization, stabilization and vitrification projects at Hanford, SRS and the West Valley Demonstration Project (WVDP), is essential to many site closure strategies.
4. Disposition of transuranic (TRU) and mixed waste (currently stored at over a dozen sites around the DOE complex) is ensured since the Waste Isolation Pilot Plant (WIPP) has been granted interim status. However, since WIPP opening was delayed there has been some increase in storage and surveillance costs which will affect the work load on ES&H staffs.

Office of Science

1. Funds for laboratory infrastructure upgrade needs (of which ES&H is one component) continue to be limited in current budget plans. Science relies on a few line-item projects, modest general plant project funding, and site overhead funding to address most ES&H and infrastructure projects.
2. Top-level reviews support DOE's request for new neutron beam capability. This will be met, in part, by the Spallation Neutron Source. ES&H considerations are intended to be an integral, but visible, part of the process of completing the project. The adequacy of plans for meeting ES&H expectations in the Spallation Neutron Source project is the responsibility of the line organizations, consistent with Oak Ridge National Laboratory's (ORNL) ISM system.

Department-Wide Environment, Safety and Health Issues

Implementing ISM depends on ES&H being a visible part of the budget and work planning and execution process at each site. Decisions about DOE's budget need to reflect the determination to ensure adequate funding of ES&H aspects of each work activity. This translates into a need to ensure that DOE-wide ES&H issues and concerns are being addressed at the Field level. The information obtained from the sites is analyzed to identify ES&H issues that are significant to DOE from a corporate standpoint. The planning and reporting effort makes this information available to external stakeholders as soon as it is developed.

Four of seven broad ES&H-related issues relevant to a major portion of the DOE complex for FY 1998 through FY 2000 are discussed in this section. The remaining three issues are discussed in the body of the report.

1. ES&H Work Under Privatization Contracts

DOE, through outsourcing or privatization, has been assigning work to organizations other than management and operating (M&O) contractors. In some cases, ES&H performance and regulatory compliance is verified completely by external agencies. However, the bulk of the

activities remain under DOE's jurisdiction. As part of the regular process of contracting for good safety performance, and then reviewing actual accomplishments, DOE monitors ES&H work under privatization contracts. For example, an entire "regulatory unit" has been created to work with the contractor selected to provide vitrification services for HLW at the Hanford site. As these contracting approaches continue to evolve, attention to ES&H management and resource allocation is required.

2. Protection of Workers During the Periods of Major Decommissioning and Demolition Activities

As the DOE complex continues to accelerate site closure activities, sites are progressing to the decommissioning, decontamination and demolition of old plutonium production facilities, such as Building 779 at RFETS. It has long been recognized that workplace injuries tend to be more numerous during decommissioning and demolition than during operation. To help ensure that DOE's good overall safety record is maintained and improved, each site is expected to include adequate resources for worker protection during these higher risk activities with emphasis on problem prevention and avoidance.

3. Waste Management Responsibility and Disposition Pathways

As DOE continues to support deactivation and decommissioning (D&D) activities, the past delays of opening the facility caused storage concerns, and additional funding may be needed to construct temporary onsite storage for mixed TRU waste. Furthermore, if additional Transuranic Package Transporter-II (TRUPACT) containers and transportation systems are not procured in sufficient numbers, the limitations of transportation capabilities may also affect onsite TRU waste storage.

4. Environmental Restoration

DOE programs involving hazardous and radioactive substances from nuclear weapons production, research, development and testing activities, and other DOE nuclear and non-nuclear programs, have contaminated environmental media (including soil, sediment, groundwater and surface water). Some waste streams were discharged to the environment with or without prior treatment. These include relatively small, localized releases that may have resulted from accidents, larger planned releases of process effluents, and releases on a much larger scale, such as

atmospheric fallout from nuclear weapons testing. In other cases, containment systems such as tanks, drums, or landfills lost their structural integrity and waste leaked into the adjacent soil and water. Contaminated media also resulted from spills and other inadvertent releases during process operations or maintenance.

DOE is now remediating contaminated environmental media through treatment, removal and containment-oriented actions. Treatment may remove contaminants from, or immobilize contaminants within, the media. In some cases, the media themselves are removed from the environment and treated or stored before final disposal. However, given current resources, technologies, and priorities, the treated media often cannot be returned to their original conditions. Owing to constrained funding, where contaminant concentrations and risks are low, and the regulators concur, DOE may pursue strategies that presume long-term monitoring and preclude unrestricted access.

Enhanced ES&H Management Planning Is a Critical Part of Integrated Safety Management

The ES&H management planning process was initiated in FY 1992 as a Departmental process for the identification, planning, allocation and budgeting of ES&H resources and activities. Initially, the process was instituted in response to a perceived lack of planning and budgeting for safety and health programs at Departmental sites. As envisioned, the ES&H management planning process provided a structured process and tools for contractor line management to undertake ES&H planning and present their risk-based resource needs to DOE (from the field office up to headquarters secretarial offices). The responsible CSO would then ensure sufficient funding was included in the budget to address the ES&H resource needs. EH would review the field submittals in conjunction with the CSOs as an ES&H advocate for the Secretary to ensure the appropriate ES&H risks and needs were being addressed. It was also envisioned that the line would close the circle between budgeting and execution to ensure that the ES&H needs identified in the budget were addressed when funds were appropriated. The tools to facilitate the ES&H management planning process have included ES&H budget guidance in the Department's unified field budget call (UNICALL), a supplemental guidance document and ES&H MPIS software.

The ES&H data captured in the ES&H MPIS remains important to the line CSOs in identifying the specific ES&H funding requirements at their sites, but has not been universally accepted.

A variety of initiatives, under the general heading of contract reform, provided the opportunity to institutionalize ES&H planning, budgeting and execution at all DOE sites through contracting. Work began in 1993 and 1994 to develop ES&H clauses that would accomplish this. The final rule, dated June 27, 1997, which modified the Department of Energy Acquisition Regulations (DEAR) 48 CFR, added a new clause, 970.5204-2, *Integration of Environment, Safety and Health into Work Planning and Execution*. This clause was made a part of all M&O, management and integrating contractor (M&I), and environmental restoration management contractor (ERMC) contracts as of December 31, 1997. The clause requires:

“The contractor shall ensure that management of ES&H functions and activities becomes an integral but visible part of the contractor’s work planning and execution processes.”

“On an annual basis, the contractor shall review and update for DOE approval, its safety performance objectives, performance measures, and commitments consistent with and in response to DOE’s program and budget execution guidance and direction. Resources shall be identified and allocated to meet safety objectives and performance commitments as well as maintain the integrity of the entire system. Accordingly, the system shall be integrated with the contractor’s business processes for work planning, budgeting, authorization, execution and change control.”

Another recent requirement added to the annual ES&H requirements in the UNICALL is the submission of an ES&H commitment affirmation letter. This letter was driven by the language in the DEAR clause above, and by Departmental commitments under the Government Performance Results Act of 1993 in the DOE strategic plan. The ES&H commitment affirmation letter is prepared by each site and submitted to their respective line CSO, affirming that prior-year ES&H commitments (e.g., FY 1998) had been met, and describing the current year (e.g., FY 1999) ES&H commitments. These letters will be required annually.

Managing ES&H Resource Allocations

DOE’s long-term goal is to make ES&H a visible part of the budget and work planning and execution process at each and every site. Emphasis is now shifting from planning to execution of

prior ES&H plans and commitments, but the need remains the same; to integrate ES&H completely into business processes. The contractual requirement to integrate ES&H into the business processes of each contractor clearly expresses DOE's expectations, but (for the time being) needs to be complemented by EH corporate assistance during the implementation.

Site performance in meeting ES&H commitments was very good to excellent in FY 1998. More than 91 percent of the ES&H commitments reported by the sites in their commitment affirmation letters and included in this report were completed as planned. Many of the original DNFSB Recommendation 94-1 commitments were not accomplished because of technical or management difficulties. These commitments have subsequently been renegotiated and new milestone accomplishment dates submitted in the revised Departmental implementation plan.

It will take a few years before every site routinely and fully integrates ES&H into budgeting and work planning. The ES&H budget and risk management summaries, submitted by each site in response to the UNICALL, are expected to be a continuing source of valuable ES&H issue and risk information that can be used by a variety of stakeholders. ES&H commitment affirmation letters express each site's commitments for good ES&H performance through commitments to pursue important ES&H activities. The entire system of information development and analysis has the potential to provide valuable information related to ES&H commitments and performance expectations.

1. OVERVIEW

The Department of Energy continues to strengthen the planning, budgeting, and management of environment, safety, and health work activities. This report is the fifth in a series of annual reports that describes DOE's environment, safety and health posture in its annual budget and execution activities.

The purposes of this report are to:

- Describe some of the major ES&H issues facing DOE and major Cognizant Secretarial Offices;
- Summarize some of the major ES&H commitments accomplished by DOE sites in fiscal year 1998;
- Describe some of the major ES&H commitments included in the FY 1999 work plans; and
- Summarize resources DOE plans to devote to operating contractor operations to help ensure that work is conducted in a safe, healthy and environmentally sound manner in FY 2000.

The process to strengthen ES&H programs is called Integrated Safety Management. A vital element of implementing ISM effectively is the timely identification of ES&H hazards, including identifying the associated resources needed to eliminate or reduce the risks to workers, the public and the environment. This report does not represent a comprehensive hazard analysis, or provide a compendium of all ES&H risks present within DOE. Rather, this report provides a DOE corporate-level resource that describes the major hazards and ES&H risks being addressed in the Congressional budget request and ES&H performance commitments included in site execution work plans. The Congressional budget process focuses on program accomplishments, and in many cases does not ensure that ES&H-related commitments are fully reflected in task-specific funding plans. The information provided in support of ISM is a useful complement to the budget data in two respects:

- Budget data from each site is analyzed to identify which ES&H-related activities are planned for funding and which are not; and
- Budget data is analyzed to assess trends and progress in meeting ES&H commitments.

On the basis of the results obtained, specialized and focused assistance can be provided to line managers at DOE sites. This report summarizes the major ES&H funding included in work plans and resources the DOE plans to devote to help ensure that work is conducted in a safe, healthy and environmentally sound manner in FY 2000. The funding identified for FY 1998 through FY 2000 in the following tables is derived from ES&H needs and priorities identified by DOE's operating contractors during the FY 2000 budget formulation process.

Table 1-1 delineates the CSOs' FY 1998 through FY 2000 Safety and Health budget targets. The FY 1998 and FY 1999 funding amounts are estimated actual expenditures, while the FY 2000 amount reflects the safety and health funding in budget plans. Table 1-2 delineates the CSOs' FY 1998 through 2000 environmental ~~compliance~~ budget targets (excluding environmental management [EM]). Again, the FY 1998 and FY 1999 funding amounts are estimates of actual expenditures while the FY 2000 amount reflects environmental ~~compliance~~ funding in the FY 2000 budget plans.

Table 1-1. FY 1998–2000 DOE Safety and Health Resource Requirements (\$ Millions)

Cognizant Secretarial Office	FY 1998¹	FY 1999¹	FY 2000¹
Defense Programs	\$381.6	\$449.0	\$446.1
Environmental Management	\$651.8	\$634.1	\$617.4
Science	\$151.1	\$151.2	\$153.7
Fossil Energy	\$8.3	\$10.9	\$10.7
Nuclear Energy, Science and Technology ²	\$23.8	\$27.6	\$28.3
Energy Efficiency and Renewable Energy	\$4.7	\$4.9	\$5.0
Civilian Radioactive Waste Management	\$6.8	\$9.2	\$7.9
Management and Administration	\$1.1	\$1.4	\$1.4
Other Cognizant Secretarial Offices ³	\$66.6	\$71.0	\$72.2
Total Planned	\$1,295.8	\$1,359.3	\$1,342.7

¹ Total Safety and Health funding includes both direct and indirect funds.

² The funding for the Office of Nuclear Energy, Science and Technology (NE) does not include funding provided through the Office of Naval Reactors (NE-60), except for a portion of the funding associated with the Advanced Test Reactor at the Idaho National Engineering and Environmental Laboratory (INEEL).

³ Funding requested under other CSOs includes: Offices of Chief Financial Officer (CR); Economic Impact and Diversity (ED); Environment, Safety & Health (EH); Energy Information Administration (EI); Field Management (FM); Fissile Material Disposition (MD); Nonproliferation and National Security (NN); Policy, Planning & Program Evaluation (PO); and Worker and Community Transition (WT).

Table 1-2. FY 1998–2000 DOE Environmental Resource Requirements (\$ Millions)¹

Cognizant Secretarial Office	FY 1998²	FY 1999²	FY 2000²
Defense Programs	\$131.6	\$204.2	\$199.9
Science	\$62.4	\$61.2	\$52.1
Fossil Energy	\$12.4	\$13.3	\$11.0
Nuclear Energy, Science and Technology	\$5.7	\$ 9.5	\$11.2
Energy Efficiency and Renewable Energy	\$1.4	\$1.5	\$1.4
Civilian Radioactive Waste Management	\$28.0	\$26.3	\$23.8
Management and Administration	\$0.0	\$0.0	\$0.0
Other Cognizant Secretarial Offices	\$37.5	\$35.6	\$34.9
Total Planned	\$279.0	\$351.6	\$334.3

¹ The Office of Environmental Management (EM) resource requirements are excluded from this table.

² Total environmental funding includes both direct and indirect funds.

³ The funding for the Office of Nuclear Energy, Science and Technology (NE) does not include funding provided through the Office of Naval Reactors (NE-60), except for a portion of the funding associated with the Advanced Test Reactor at the Idaho National Engineering and Environmental Laboratory (INEEL).

⁴ Funding requested under other CSOs includes: Offices of Chief Financial Officer (CR); Economic Impact and Diversity (ED); Environment, Safety & Health (EH); Energy Information Administration (EI); Field Management (FM); Fissile Material Disposition (MD); Nonproliferation and National Security (NN); Policy, Planning & Program Evaluation (PO); and Worker and Community Transition (WT).

This report also presents a brief discussion of the significant ES&H-related programmatic issues facing each CSO. The CSOs discussed in this report are: EM, Defense Programs (DP), Science (SC) (formerly Energy Research), Nuclear Energy, Science and Technology (NE), Civilian Radioactive Waste Management (RW), Fossil Energy (FE), Energy Efficiency and Renewable Energy (EE), and Management and Administration (MA) (formerly Human Resources and Administration).

The funding identified in this report does not address ES&H-related program activities that are considered a part of the program mission and are visible in DOE's budget request. For example, not included is the funding for nuclear material stabilization, waste management and environmental restoration activities conducted by EM and funding for electrometallurgical fuel treatment activities being carried out by NE or their program activities related to improving the safety of former Soviet Reactors. However, relevant ES&H issues or ES&H commitments related to some of these EM and NE activities are discussed in their respective CSO summaries. Also, Naval Reactors and direct funding for the Office of Environment, Safety and Health (EH) are not included.

The funding identified in this report is not apparent in the DOE Congressional budget submission. Rather, it is a “cross-cut” of ES&H budget and planning information. It represents ES&H needs for operating contractor ES&H manpower, DOE facility and operational compliance, and other infrastructure upgrades and equipment to develop and implement ES&H controls and enhance ES&H programs aimed at preventing accidents. The budget formulation and planning process explicitly addresses needs stemming from:

- Safety and Health
 - Emergency Preparedness
 - Fire Protection
 - Industrial Hygiene
 - Industrial Safety
 - Occupational Medical Services
 - Nuclear Safety
 - Radiation Protection
 - Transportation Safety
 - Management and Oversight.
- Environment
 - Protection of Air Quality
 - Control of Toxic Substances
 - Protection of Water Quality
 - Environmental Restoration¹
 - Pollution Prevention and Waste Minimization
 - Waste Management²
 - Management, Oversight, and Reporting.

Approximately \$1.34 billion is planned for safety and health activities as part of DOE’s FY 2000 Congressional budget request. Table 1-3 presents a detailed breakout of the Safety and Health funding (including direct budget authorization and indirect [overhead] funding) in DOE’s FY 2000 budget request for each CSO.

¹ The Environmental Restoration and Waste Management functional areas represent non-EM funded environmental cleanup and newly generated waste activities, respectively.

Table 1-3. FY 2000 DOE Safety and Health Resource Requirements (\$ Millions)

Cognizant Secretarial Office	Direct	Indirect	Total	% of DOE Safety and Health Budget	% of CSO Budget
Defense Programs	\$346.9	\$99.2	\$446.1	33%	10%
Environmental Management	\$388.7	\$228.7	\$617.4	44%	10%
Science	\$86.0	\$67.7	\$153.7	12%	6%
Fossil Energy	\$9.4	\$1.3	\$10.7	1%	4%
Nuclear Energy, Science and Technology ¹	\$21.5	\$6.8	\$28.3	2%	12%
Energy Efficiency and Renewable Energy	\$0.9	\$4.1	\$5.0	<1%	<1%
Civilian Radioactive Waste Management	\$6.7	\$1.2	\$7.9	<1%	3%
Management and Administration	\$1.4	\$0.0	\$1.4	<1%	1%
Other Cognizant Secretarial Offices ²	\$21.5	\$50.7	\$72.2	6%	4%
Total Planned	\$883.0	\$459.7	\$1,342.7	100%	8%

¹ The funding for the Office of Nuclear Energy, Science and Technology (NE) does not include funding provided through the Office of Naval Reactors (NE-60), except for a portion of the funding associated with the Advanced Test Reactor at the Idaho National Engineering and Environmental Laboratory (INEEL).

² Funding requested under other CSOs includes: Offices of Chief Financial Officer (CR); Economic Impact and Diversity (ED); Environment, Safety & Health (EH); Energy Information Administration (EI); Field Management (FM); General Counsel (GC); Fissile Material Disposition (MD); Nonproliferation and National Security (NN); Policy, Planning & Program Evaluation (PO); Federal Energy Regulatory Commission (FERC); and Worker and Community Transition (WT).

Approximately \$334 million is planned for non-EM environmental activities as part of DOE's FY 2000 Congressional budget request. Table 1-4 presents a detailed breakout of the environmental funding (again including direct budget authorization and indirect (overhead) funding) in DOE's FY 2000 budget request for each CSO, except the EM. As can be seen from these two tables, DP, EM and SC are the caretakers of approximately 87 percent of DOE's FY 2000 ES&H funding requirements.

Finally, Tables 1-5 and 1-6 provide break out the FY 1998 and FY 1999 estimated actual and FY 2000 funding request by the safety and health and non-EM environmental functional areas described previously.

Table 1-4. FY 2000 DOE Environmental Resource Requirements (\$ Millions)¹

Cognizant Secretarial Office	Direct	Indirect	Total	% of DOE Environmental Budget	% of CSO Budget
Defense Programs	\$151.1	\$48.8	\$199.9	59%	4%
Science	\$30.9	\$21.2	\$52.1	16%	2%
Fossil Energy	\$10.8	\$0.2	\$11.0	4%	4%
Nuclear Energy, Science and Technology ²	\$9.7	\$1.5	\$11.2	4%	5%
Energy Efficiency and Renewable Energy	\$0.4	\$1.0	\$1.4	<1%	<1%
Civilian Radioactive Waste Management	\$23.4	\$0.4	\$23.8	7%	8%
Management and Administration	\$0.0	\$0.0	\$0.0	0%	<1%
Other Cognizant Secretarial Offices ³	\$8.4	\$26.5	\$34.9	9%	2%
Total Planned	\$234.7	\$99.6	\$334.3	100%	2%

¹ The Office of Environmental Management (EM) resource requirements are excluded from this table.

² The funding for the Office of Nuclear Energy, Science and Technology (NE) does not include funding provided through the Office of Naval Reactors (NE-60), except for a portion of the funding associated with the Advanced Test Reactor at the Idaho National Engineering and Environmental Laboratory (INEEL).

³ Funding requested under other CSOs includes: Offices of Chief Financial Officer (CR); Economic Impact and Diversity (ED); Environment, Safety & Health (EH); Energy Information Administration (EI); Field Management (FM); Fissile Material Disposition (MD); Nonproliferation and National Security (NN); Policy, Planning & Program Evaluation (PO); and Worker and Community Transition (WT).

Table 1-5. FY 1998–2000 DOE Safety and Health Resource Requirements (\$ Millions)

Functional Areas	FY 1998 ¹	FY 1999 ¹	FY 2000 ¹
Emergency Preparedness	\$84.5	\$ 84.4	\$84.2
Fire Protection	\$144.0	\$155.2	\$148.6
Industrial Hygiene	\$88.0	\$91.0	\$92.9
Industrial Safety	\$146.2	\$162.9	\$159.5
Occupational Medical Services	\$ 66.4	\$68.2	\$67.9
Nuclear Safety	\$140.5	\$147.6	\$143.6
Radiation Protection	\$338.9	\$349.9	\$352.4
Transportation Safety	\$33.2	\$36.5	\$36.9
Management and Oversight	\$254.0	\$263.4	\$256.6
Total Planned	\$1,295.8	\$1,359.3	\$1,342.7

¹ Total safety and health funding includes both direct and indirect funds.

Table 1-6. FY 1998–2000 DOE Environmental Resource Requirements (\$ Millions)¹

Cognizant Secretarial Office	FY 1998²	FY 1999²	FY 2000²
Protection of Air Quality	\$35.0	\$34.2	\$27.5
Control of Toxic Substances	\$13.9	\$10.7	\$10.7
Protection of Water Quality	\$52.2	\$36.5	\$31.4
Environmental Restoration	\$2.5	\$3.8	\$2.4
Pollution Prevention and Waste Minimization	\$28.0	\$16.1	\$9.6
Waste Management	\$35.5	\$140.3	\$149.7
Management, Oversight and Reporting	\$111.9	\$110.0	\$103.0
Total Planned	\$279.0	\$351.6	\$334.3

¹ The Office of Environmental Management (EM) resource requirements are excluded from this table.

² Total environmental funding includes both direct and indirect funds.

Analysis of the information associated with FY 2000 budget shows the following trends:

Planned Safety and Health Funding:

- Occupational safety and health programs (includes industrial hygiene, industrial safety and occupational medical programs) account for approximately 24 percent of the total funding;
- Nuclear safety and radiation protection funding accounts for approximately 37 percent of total funding;
- Other safety and health programs (includes emergency preparedness, fire protection and transportation safety programs) account for approximately 20 percent of the total funding; and
- Management and oversight programs account for 19 percent of the total safety and health funding.

Planned non-EM Environmental Funding:

- Waste management programs account for approximately 45 percent of the total funding. The large increase in waste management funding from FY 1998 to FY 1999 and FY 2000 is attributable to the transfer of responsibility for the management of newly generated waste from EM to the other line programs. This transition is continuing.
- Environmental restoration projects account for less than 1 percent of total funding.
- Other environmental programs (includes clean air (8 percent), toxic and hazardous substances (3 percent), clean water (9 percent), and pollution prevention/waste minimization (3 percent) programs) cumulatively account for 23 percent of total funding.
- Management, oversight, and National Environmental Policy Act (NEPA) reporting programs account for 31 percent of the total funding.

1.1 Enhanced ES&H Management Planning Is a Critical Part of Integrated Safety Management

DOE has made significant progress in ES&H management since the inception of the ES&H management planning process in 1992. This is illustrated by DOE's ability to account for the ES&H funding requirements of its sites, to describe the major ES&H issues in the Department budget request, and to describe ES&H performance commitments in site work. The ES&H management planning process was initiated as a Departmental process for the identification, planning, allocation and budgeting for ES&H resources and activities. Initially, the process was instituted in response to a perceived lack of planning and budgeting for safety and health programs at Departmental sites. As envisioned, the ES&H management planning process provided a structured process and tools for contractor line management to undertake ES&H planning and present their risk-based resource needs to DOE (from the Field Office up to Headquarters Secretarial Offices). The responsible CSO would then ensure sufficient funding was included in the budget to address the ES&H resource needs. The EH would review the field submittals in conjunction with the CSOs as an ES&H advocate for the Secretary to ensure the appropriate ES&H risks and needs are being addressed. It was also envisioned that the line would close the circle between budgeting and execution to ensure the ES&H needs identified in the budget were addressed when funds were appropriated. The tools to facilitate the ES&H management planning process have included ES&H budget guidance in DOE's unified field budget call (UNICALL), a supplemental guidance document and ES&H Management Plan Information System (MPIS) software.

The ES&H data captured in the ES&H MPIS remains important to the line CSOs in identifying the specific ES&H funding requirements at their sites, but has not been universally accepted.

A variety of initiatives, under the general heading of contract reform, provided the opportunity to institutionalize ES&H planning, budgeting and execution at all DOE sites through contracting. Work began in 1993 and 1994 to develop ES&H clauses that would accomplish this. The final rule, dated June 27, 1997, which modified the Department of Energy Acquisition Regulations (DEAR) 48 CFR, added a new clause, 970.5204-2, *Integration of Environment, Safety and Health into Work Planning and Execution*. This clause was made a part of all Management

and Operating Contractor (M&O), Management and Integrating Contractor (M&I), and Environmental Restoration Management Contractor (ERMC) contracts as of December 31, 1997. The clause requires:

“The contractor shall ensure that management of ES&H functions and activities becomes an integral but visible part of the contractor’s work planning and execution processes.”

“On an annual basis, the contractor shall review and update for DOE approval, its safety performance objectives, performance measures, and commitments consistent with and in response to DOE’s program and budget execution guidance and direction. Resources shall be identified and allocated to meet safety objectives and performance commitments as well as maintain the integrity of the entire system. Accordingly, the system shall be integrated with the contractor’s business processes for work planning, budgeting, authorization, execution and change control.”

Another recent requirement added to the annual ES&H requirements in the UNICALL is the submission of an ES&H commitment affirmation letter. This letter was driven by the language in the DEAR clause above, and by Departmental commitments under the Government Performance Results Act of 1993 in the DOE strategic plan. The ES&H commitment affirmation letter is prepared by each site and submitted to the respective line CSO, affirming that prior-year ES&H commitments (e.g., FY 1998), had been met, and describing the current year (e.g., FY 1999) ES&H commitments. These letters will be required annually.

1.2 Conclusions – Managing ES&H Resource Allocations

DOE’s long-term goal is to make ES&H a visible part of the budget and work planning and execution process at each and every site. Emphasis is now shifting from planning to execution of prior ES&H plans and commitments, but the need remains the same; to integrate ES&H completely into business processes. The requirement to integrate ES&H into the business processes of each contractor clearly expresses DOE’s expectations, but (for the time being) needs to be complemented by EH corporate assistance during the implementation.

Site performance in meeting ES&H commitments was very good to excellent in FY 1998. More than 91 percent of the ES&H commitments reported by the sites in their commitment affirmation letters and included in this report were completed as planned. Many of the original Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 94-1 commitments were not

accomplished because of technical or management difficulties. These commitments have subsequently been renegotiated and new milestone accomplishment dates submitted in the revised Departmental implementation plan.

It will take a few years before every site routinely and fully integrates ES&H into budgeting and work planning. The ES&H budget and risk management summaries, submitted by each site in response to the UNICALL, are expected to be a continuing source of valuable ES&H issue and risk information that can be used by a variety of stakeholders. ES&H commitment affirmation letters express each site's commitment to good ES&H performance through its commitments to pursue important ES&H activities. The entire system of information development and analysis has the potential to provide valuable information related to ES&H commitments and performance expectations.

2. ENVIRONMENT, SAFETY AND HEALTH PLANS AND BUDGETS

This section provides the FY 2000 ES&H program summaries and planned funding for CSOs. The CSO summaries and planned funding represent those ES&H activities for which each CSO is managerially responsible. Also presented are major ES&H site commitments completed in FY 1998 and those included in FY 1999 work plans at the Departmental sites applicable to the CSO. The ES&H commitments described in the body of this report were obtained from the ES&H commitment affirmation letters submitted by the Departmental sites to the line CSOs. Although ES&H commitments are summarized in this Departmental report, actual responsibility for tracking completion of these commitments is a line responsibility accomplished by the DOE Field office with oversight by the headquarters program office. Thus, the FY 1998 commitment accomplishments and those described for FY 1999 illustrate line management accountability for ES&H performance.

The process of implementing ISM depends on making ES&H a visible part of the budget and work planning and execution process at each site. Decisions about DOE's budget need to reflect the determination to ensure adequate funding of ES&H aspects of each work activity. This translates into a need to ensure, from a corporate standpoint, that DOE-wide ES&H issues and concerns are being addressed at the Field level. The information obtained from the sites is analyzed to identify those ES&H issues that are significant to DOE from a corporate standpoint. The planning and reporting effort makes this information available to external stakeholders virtually as soon as it is developed.

There are seven broad ES&H-related issues that are relevant either complex-wide or to a major portion of the DOE complex for FY 1998 through FY 2000. These issues are: ES&H work under privatization contracts; protection of workers during the period of major decommissioning and demolition activities; waste management responsibility and disposition pathways; environmental restoration; maintenance of ES&H-related infrastructure; disposition of special nuclear materials (SNM); and excess and aging facilities.

2.1 ES&H Work Under Privatization Contracts

DOE, through outsourcing or privatization, has been assigning work to organizations other than its M&O contractors, M&I contractors, or ERM C contractors. In some cases, ES&H performance and regulatory compliance is verified completely by external agencies. However, the bulk of the activities remain under DOE's jurisdiction. DOE monitors ES&H work under privatization contracts as part of the regular process of contracting for good safety performance and reviewing actual accomplishments. For example, an entire "regulatory unit" has been created to work with the contractor selected to provide vitrification services for high-level wastes (HLW) at the Hanford Site (Hanford). As these contracting approaches continue to evolve, attention to ES&H management and resource allocation is required.

2.2 Protection of Workers During the Period of Major Decommissioning and Demolition Activities

As the DOE complex continues to accelerate site closure activities, sites are progressing to the decommissioning, decontamination and demolition of old plutonium production facilities, such as Building 779 at the Rocky Flats Environmental Technology Site (RFETS). It has long been recognized that workplace injuries tend to be more numerous during decommissioning and demolition rather than during operation. To help ensure that DOE's good overall safety record is maintained, each site is expected to include adequate resources for worker protection during these higher risk activities. DOE's emphasis on problem prevention and avoidance requires that attention be given to this general area.

2.3 Waste Management Responsibility and Disposition Pathways

As DOE continues to support deactivation and decommissioning (D&D) activities, lack of permitted capabilities for accumulation of mixed transuranic (TRU) wastes is becoming an issue. The EM program currently does not have an alternate strategy for management of mixed TRU wastes in the event of continued delays at the Waste Isolation Pilot Plant (WIPP). The lack of a receiver site for other mixes waste is also causing storage concerns. As final disposition is delayed, additional funding may be needed to construct temporary onsite storage for mixed TRU waste. Furthermore, if additional Transuranic Package Transporter (TRUPACT) containers and

transportation systems are not procured in sufficient numbers, the limitations of transportation capabilities may also affect onsite storage.

The lack of a receiver site for other mixed waste is also causing storage concerns. Use of DOE-wide facilities for the processing of certain waste types is also affecting the accelerated site closure plans. For example, the Toxic Substances Control Act (TSCA) Incinerator at the East Tennessee Technology Park is currently unavailable for processing off-site wastes because of an issue with the State of Tennessee, and the regulators have required the new Waste Calcining Facility at the Idaho National Engineering and Environmental Laboratory (INEEL) to be shutdown in April 1999. As a result, sites such as RFETS currently have no disposition pathway for low-level mixed waste (LLMW) with greater than 10 nano-Curies per gram (nCi/gram) radioactive content. The non-availability of DOE-wide waste processing assets, owing either to budget or regulatory concerns, may force sites to build additional LLMW storage or processing facilities.

The transition of responsibility for waste management activities from EM to another responsible CSO at non-EM sites, particularly for newly generated waste, is a DOE-wide issue. In some cases, the responsibility was transferred without the accompanying funding. At these sites, the CSO must now ensure adequate funding is provided to continue managing waste in the absence of EM. Further transition activities are planned in FY 2000 and out-year budgets. For instance, EM and SC recently agreed to transfer waste management responsibilities at the following laboratories in FY 2001: Ames National Laboratory, Argonne National Laboratory-East, Brookhaven National Laboratory, Lawrence Berkeley National Laboratory, Princeton Plasma Physics Laboratory, and Pacific Northwest National Laboratory.

2.4 Environmental Restoration

Hazardous and radioactive substances from nuclear weapons production, research, development, and testing activities, and other DOE nuclear and non-nuclear programs, have contaminated environmental media (including soil, sediment, groundwater, and surface water) on and around DOE sites. Some waste streams were discharged to the environment without prior treatment. These include relatively small, localized releases that may have resulted from accidents, larger planned releases of process effluents, and releases on a much larger scale, such as atmospheric fallout from nuclear weapons testing. In other cases, containment systems such as

tanks, drums or landfills lost their structural integrity, and waste leaked into the adjacent soil and water. Contaminated media also resulted from spills and other inadvertent releases during process operations or maintenance.

DOE is now performing corrective actions for contaminated environmental media through treatment, removal and containment actions. Treatment may remove contaminants from the media or immobilize contaminants within it. In some cases, the media themselves are removed from the environment and treated or stored before final disposal. However, given current resources, technologies and priorities, the treated medium often cannot be returned to its original condition. Because of constrained funding, if contaminant concentrations and risks are low and the regulators concur, DOE may pursue strategies that include long-term monitoring and preclude unrestricted access.

2.5 Maintenance of ES&H-Related Infrastructure

With regards to aging facilities still in use, infrastructure degradation remains an issue. Numerous ES&H capital and line-item projects by the various responsible secretarial offices are directed at implementing life safety, fire protection or electrical safety upgrades to improve the safety of these facilities. However, the needs exceed available funding and projects must be managed on the basis of on risk mitigation.

2.6 Disposition of Special Nuclear Materials

Large quantities of spent nuclear fuel, weapons grade plutonium, and other nuclear materials are stored on sites across the complex; much of it in forms and facilities not suited for safe, long-term storage or disposition. In FY 1994, DNFSB issued Recommendation 94-1, *Improved Schedule for Remediation (Nuclear Materials Stabilization)*, recommending that DOE develop a plan to stabilize plutonium and other nuclear materials into forms suitable for safe interim storage. Subsequently in FY 1997, the DNFSB issued Recommendation 97-1, *Safe Storage of Uranium-233*. Implementation plans for both 94-1 and 97-1 were developed. A Nuclear Materials Stabilization Task Group was established to move forward with a program to integrate complex-wide initiatives to manage nuclear materials stabilization activities. Through this

program, DOE originally committed to stabilization of nuclear materials by May 2002 and to the packaging of all excess plutonium metal and oxide for long-term storage.

DOE experienced numerous missed milestones in its commitment to the DNFSB this past year because of technical and management reasons. Significant schedule delays occurred at the K-Basins at Hanford, Plutonium Finishing Plant at Hanford, SNM Liquid Processing at RFETS, Residues at RFETS, and in-tank precipitation at the Savannah River Site (SRS). This prompted a revision to the Departmental Implementation Plan for DNFSB 94-1 to provide new milestones to the DNFSB and a renegotiation of milestones with regulators. The schedule for completion of 94-1 activities has been slipped to FY 2005.

In addition, cross-site shipment, processing, and storage of nuclear materials may be an issue. Budget pressures, particularly those related to cross-site shipment and processing of materials, may affect the schedule of these renegotiated milestones. Current plans call for SRS to accept metals and oxides from RFETS and Hanford, and to process sand slag and crucibles residues from RFETS. For these plans to succeed, the SRS must have suitable facilities available for the storage of these materials.

2.7 Excess and Aging Facilities

During the course of nuclear weapons production and other activities, DOE and its predecessor agencies built and used more than 20,000 facilities (buildings as well as support structures). Many of these facilities became contaminated with radionuclides and/or chemical constituents. The change in DOE's mission, and an aging infrastructure, has led DOE to evaluate the status of, and long-term plans for, many of its facilities. The facilities discussed here are those that DOE has identified as "excess" to its programmatic needs.

By 1997, DOE had identified approximately 5,000 of its facilities as excess. Most of these facilities are currently being managed by EM. In the past year, approximately 800 additional facilities have been identified as "excess." While characterization of all of these facilities is not yet complete, historical information and process knowledge indicate that a large number of these facilities are known or suspected to be contaminated with hazardous, toxic and/or radioactive substances. With respect to their distribution across the sites, it is known that:

- Hanford and SRS, with 1,500 and 1,200 facilities, respectively, have the largest numbers of facilities identified as excess.
- Hanford (250) and the Fernald Environmental Management Field (Fernald) (180) have the largest numbers of facilities presently in the deactivation and decommissioning process.

Management of the approximately 800 facilities still “owned” by the line programs is part of the life cycle of any project. DOE policies and the new Life Cycle Asset Management Order (DOE Order 430.1) require proper maintenance of such facilities by the owning program. This is particularly important since EM is not accepting new facilities, and the expectation is that the owning line program will be responsible for managing these facilities for the foreseeable future, possibly through D&D. However, program mission needs are competing with maintenance requirements for scarce resources. In many cases, the management of excess facilities requires continuing attention to ensure that planned surveillance and maintenance activities deal adequately with ES&H needs to protect workers and the public. Attention is also needed to help ensure facilities do not deteriorate to such an extent that later decommissioning becomes inordinately expensive.

Notably, this year EM and SC negotiated a memorandum of agreement for the transfer of project responsibility for one excess facility, the Brookhaven Graphite Research Reactor (BGRR). Per the memorandum of agreement, EM will manage the stabilization and decommissioning and decontamination work. It is also notable that SC plans to begin D&D of the Tokamak Fusion Test Reactor (TFTR) in FY 2000.

3. OFFICE OF ENVIRONMENTAL MANAGEMENT (EM)

The EM FY 2000 Congressional budget request continues use of the budget structure that aligns more closely with EM's goals of accelerating cleanup and moving to a project-based management approach. The EM FY 1998 through FY 2000 safety and health support budget is distributed among the Field sites as follows:

Table 3-1. EM Field Site Safety and Health Funding (Millions)¹

EM Site	FY 1998	FY 1999	FY 2000	FY 2000 Other CSO ²
Grand Junction Project Office	\$0.5	\$0.7	\$1.2	\$0.0
Inhalation Toxicology Research Institute	\$0.1	\$0.1	\$1.1	\$0.0
Pinellas	\$0.1	\$0.1	\$0.1	\$0.0
Uranium Mill Tailings Remedial Action Project	\$4.9	\$1.2	\$0.2	\$0.0
East Tennessee Technology Park	\$56.0	\$54.0	\$54.5	\$0.5
Weldon Springs Remedial Action Project	\$2.0	\$1.5	\$1.3	\$0.0
General Atomics San Diego	\$2.3	\$1.7	\$1.7	\$0.0
General Electric Vallecitos	\$0.2	\$0.2	\$0.3	\$0.0
Energy Technology Engineering Center	\$1.9	\$1.7	\$0.4	\$0.0
Laboratory of Radiobiology and Environmental Health	\$0.9	\$0.9	\$0.6	\$0.0
Ashtabula	\$1.3	\$1.4	\$1.4	\$0.0
Battelle Columbus Laboratory	\$2.8	\$2.5	\$2.6	\$0.0
Fernald Environmental Management Project	\$15.3	\$14.7	\$13.8	\$0.0
Mound	\$7.8	\$7.3	\$5.9	\$0.7
West Valley Demonstration Project	\$8.2	\$8.5	\$8.7	\$0.0
Carlsbad Operations	\$12.3	\$14.0	\$14.4	\$0.0
Idaho Operations	\$83.7	\$90.0	\$84.7	\$7.3
Richland Operations	\$190.9	\$175.9	\$173.1	\$5.8
Rocky Flats Operations	\$76.3	\$74.7	\$76.0	\$0.0
Savannah River Operations	\$111.3	\$106.4	\$106.4	\$7.4
Other EM Funding ³	\$72.9	\$76.5	\$69.9	N/A
Total	\$651.8	\$634.1	\$617.4	\$21.7

¹ The EM budget numbers include only the worker safety and health activities.

² Other CSO funding is the Safety and Health funding received by EM sites from all other CSOs. This amount combined with the EM Safety and Health funding represents the total site FY 1999 Safety and Health funding.

³ For FY 2000, other EM funding (and percent of total) includes EM S&H distributed to ANL-E (8%), ANL-W (3%), BNL (5%), LANL (28%), LBNL (3%), LLNL (17%), NTS (8%), Paducah Gaseous Diffusion Plant (5%), Portsmouth Gaseous Diffusion Plant (7%), PNNL (5%), SNL (7%), and other EM Sites (5%).

3.1 Environment, Safety and Health Issues and Challenges

The EM program is responsible for management of some of DOE's most hazardous materials. EM faces numerous challenges over the next several years while it seeks to accelerate waste management, environmental restoration, and nuclear material and facility stabilization projects in a climate of declining financial resources. [Note: A majority of the ES&H issues and challenges discussed in this section are programmatic and should be covered by the EM congressional appropriations and budget request. These issues go beyond the safety and health funding associated with worker safety and health activities listed in Table 3-1.] As identified in last year's report, maintaining the integrity of ES&H programs requires continued focus on the following issues.

- ***Mitigating Hazards Associated with the Deactivation, Decontamination, and Decommissioning of Nuclear Facilities.*** To achieve the closure goals identified in the EM Accelerated Cleanup: Paths to Closure plan, EM must develop integrated risk and safety management strategies to identify, characterize, assess, and control the hazards associated with the dismantlement of these aged nuclear facilities. Many of these facilities contain particulate nuclear material (e.g., plutonium, uranium oxide, and americium) and non-nuclear hazardous materials (e.g., asbestos, lead, beryllium, and polychlorinated biphenyls [PCBs]) that must be controlled as systems are removed and facilities are demolished. As such, it is critical that adequate ES&H resources be applied to these hazardous operations and that the safety management approach be fully integrated with the planning, performance and monitoring of the work. Disposition of contaminated nuclear facilities requires resolution at numerous sites including the deactivation, decontamination and decommissioning of facilities at Hanford, the Oak Ridge Reservation (ORR) and RFETS, and the reuse and leasing of facilities at the ORR East Tennessee Technology Park.
- ***Contingency Planning for Reduced Budgets.*** Most EM sites continue to be faced with needs that exceed resources. As a result, the sites are seeking ways to achieve reductions in support costs and improvements in operating efficiencies, including deferral of some low priority activities. The specific activities that will be undertaken to secure these reductions have yet to be defined, and need to be realized without making indiscriminate cuts in ES&H programs. Contingency plans have not yet been established for managing site activities in the event that efficiency targets are not attained. Resources that are lower than planned will require rebaselining site strategies and projects, including associated ES&H needs.
- ***Planning for Additional Excess Facilities.*** Current EM site cleanup and closure plans do not address acceptance of additional facilities identified as excess by other Departmental programs. The Accelerated Cleanup: Paths to Closure plan assumes no additional excess facilities are transferred into the EM program. DP, SC, and NE have identified a significant number of facilities without a current or future

operational mission. While these facilities offer little programmatic value to DP, NE and EM, and are of secondary importance, DOE's environmental liability and the surveillance and maintenance resource requirements to maintain these facilities is increasing. From an ES&H perspective, organizational responsibility for excess facility management is of secondary importance, as long as ES&H expectations for interim care and long-term disposition are met.

- **Management of Nuclear Material.** The management and disposition of nuclear material represent the most significant vulnerability at many EM sites. DNFSB 94-1 commitments for residue stabilization are behind schedule, requiring contingency and work-around strategies to be incorporated into current project baselines. While several high-risk activities identified in the Department's 94-1 Implementation Plan have been completed on schedule, some risk reduction activities remain (e.g., a small portion of plutonium-containing salts at RFETS will require stabilization prior to repackaging for disposal at WIPP). Further delays in conducting stabilization work surfaced such as: removal of spent nuclear fuel from K-Basins at Hanford, dissolution of Mk-16 and Mk-22 spent nuclear fuel at SRS, and vitrification of americium and curium solutions at SRS. While these delays prolong the elimination of vulnerabilities associated with nuclear materials, ES&H programs will need to be reconfigured to support alternative strategies and revised schedules. As a result, DOE's implementation plan was revised to reflect new milestones considered achievable. This revised schedule delays completion of DNFSB recommendation 94-1 actions until FY 2005. Continued stabilization of nuclear materials (i.e., spent nuclear fuel, plutonium, uranium, neptunium, americium, and curium) is critical at Hanford, RFETS, SRS, INEEL and ORR. In addition to known spent fuel, plutonium and uranium vulnerabilities, special isotope materials require more detailed characterization and represent an additional unknown Departmental liability. For materials which are stabilized, DOE currently lacks a comprehensive and integrated interim storage strategy. This creates additional vulnerabilities requiring closer attention and increased budget resources. The shipment of plutonium-bearing materials from RFETS to SRS requires the construction of appropriate site facilities. However, presently committed funds for facilities such as the Actinide Packaging and Storage Facility at SRS are not adequate to support current schedules for receipt and storage of materials from other sites.
- **Waste Management.** Accelerating the treatment and disposition of HLW, low-level waste (LLW), mixed waste, and TRU wastes presents EM sites with regulatory as well as safety and health challenges. Technical problems at the Defense Waste Processing Facility at SRS are being addressed at high costs that will increase budget needs to complete staging modifications for residue processing. HLW management includes continued characterization, stabilization and vitrification projects at Hanford, SRS and the West Valley Demonstration Project (WVDP).
- **Environmental Restoration.** Soil and groundwater characterization and remediation projects are conducted in accordance with defined controls to address known hazards. The cleanup of mercury contamination at the ORR requires further site characterization. Based upon characterization results, additional funding beyond that in the FY 1999 budget may be required. Issues surrounding the design, construction

and operation of the Pit 9 facility to treat and stabilize buried transuranic and hazardous waste at INEEL still require resolution.

- **Safety Management Systems.** Considerable progress has been made within EM in meeting DOE's requirements to implement the integrated safety management system (ISMS). EM is responsible for the majority of the 10 priority facilities for initial implementation. Preliminary verification of ISMS implementation at most of the priority facilities was conducted in FY 1998. Development of other facility safety management system descriptions is under way with implementation verification conducted in FY 1998 or scheduled for FY 1999. The safety management program within EM is providing benefits in the way of improved organization, better defined roles and responsibilities, and a willingness of line managers to acknowledge and accept the responsibilities that accompany their positions.

3.2 Progress at Office of Environmental Management Sites

EM sites have made considerable progress in addressing the ES&H concerns outlined above and in meeting ES&H Commitments in FY 1998. Work planned for FY 1999 also addresses major ES&H commitments and issues. The following is a brief summary of FY 1998 and FY 1999 ES&H commitments being addressed at EM Landlord sites.

3.2.1 Idaho Operations Office – Idaho National Engineering and Environmental Laboratory

FY 1998 Major ES&H Commitments:

- Meet all Enforceable Milestones required by Settlement Agreement, Federal Facility Act/Compliance, Site Treatment Plan, and Consent Order activities. The status of some of these milestones is as follows:
 - Operated the High-Level Liquid Waste Evaporator to reduce the tank farm liquid waste volume by no fewer than 330,000 gallons.
 - Submitted the draft documentation to the U.S. Environmental Protection Agency (EPA) and Idaho Department of Health and Welfare for review including: Operable Unit (OU) 2-13 Statement Of Work for Test Reactor Area; Pit 9 – OU 7-10 Alternative Stage I Work Plan; OU 7-13, 14 Draft Remedial Investigation/Feasibility Study Work Plan; Addendum A for the Radioactive Waste Management Complex, OU 10-04 Draft Remedial Investigation/Feasibility Study Statement of Work for the Snake River Aquifer and miscellaneous sites; OU 2-13 Draft Remedial Design/Remedial Action Work Plan for Test Area North; and OU 4-13 Draft Remedial Investigation/Feasibility Study Report for Central Facilities Area.
 - Commenced Debris Treatment System testing on schedule.
 - Stabilization backlog schedule finished per site treatment plan.

- Completed calcining of all remaining non-sodium bearing waste 4 months ahead of schedule.
- Initiated calcining of sodium bearing waste.
- Initiated macroencapsulation construction per site treatment plan.
- Prepared first WIPP payload.
- An extensive chemical vulnerability assessment was completed in response to the Hanford tank incident. The outcome resulted in findings that highlighted opportunities in site-wide chemical safety management. The corrective actions were identified and entered into the INEEL issue management database for action tracking.
- The INEEL ISMS description document was completed and submitted to the DOE Idaho Operations Office (ID) for review and approval. This completed the first phase of implementing the requirements of DEAR Clause 970.
- Activities were begun to achieve and monitor an environmentally compliant workplace, including development and implementation of an Environmental Management System, which clearly defines roles and responsibilities (e.g., International Organization for Standardization [ISO] 14001).

FY 1999 Major ES&H Commitments:

- Meet all enforceable milestones required by Settlement Agreement, Federal Facility Act/Compliance, Site Treatment Plan, and Consent Order activities. The following list of enforceable milestone ES&H work commitments for FY 1999 apply:
 - Submit documentation to EPA and Idaho Department of Health and Welfare for Review. Those required include: Pit 9 – OU 7-10 Draft Remedial Action Work Plan; OU 5-12 Draft Remedial Investigation/Feasibility Study for the Power Burst Facility/Auxiliary Reactor Area; OU 10-04 Draft Remedial Investigation/Feasibility Study Work Plan for Snake River Aquifer and Miscellaneous Sites; OU 3-13 Chemical Processing Plant (CPP) Tank Farms Draft Remedial Investigation/Feasibility Study Record of Decision; OU 1-07B Draft Test Area North New Pump and Treat Facility Remedial Design/Remedial Action Work Plan; OU 4-13 Central Facilities Area Draft Remedial Investigation/Feasibility Study Record of Decision; OU 5-12 Draft Remedial Investigation/Feasibility Study Record of Decision; and OU 1-10 Test Area North Draft Remedial Investigation/Feasibility Study.
 - Submit final screening level risk assessment for the calciner to the Idaho Department of Health and Welfare and EPA.
 - Submit the phase 2 schedule for closure of the Prepp Facility.
 - Complete Three Mile Island Unit 2 Interim Spent Fuel Storage Installation construction.
 - Submit a final screening level risk assessment to Department of Environmental Quality and EPA.
 - Commence macroencapsulation operations.

- Commence loading Three Mile Island spent nuclear fuel from wet storage at the Test Area North into dry storage at the Idaho Nuclear Technology and Engineering Center (formerly known as the Idaho Chemical Processing Plant).
- Send first TRU waste shipment out of state.
- Issue record of decision (ROD) for shipment and ultimate disposal of spent nuclear fuel outside Idaho.
- Place the new waste calciner in standby mode – scheduled for April 1999.
- Complete Building CPP-633 Waste Calcining Facility Resource Conservation and Recovery Act (RCRA) closure.
- Complete 25 percent of the incineration backlog.
- Schedule macroencapsulation backlog.
- Complete 75 percent of cask dismantlement backlog.
- Fully implement ISMS.
- Establish the EM infrastructure to be compliant with ISO 14001.
- Complete all corrective actions described in the consolidated response to Type A investigation of the CO₂ fatality at the Test Reactor Area.
- Establish a strategic approach to 100-percent compliance with environmental laws.

3.2.2 *Oak Ridge Operations Office – East Tennessee Technology Park*

FY 1998 and FY 1999 Major ES&H Commitments:

- Develop an ISMS for the Environmental Management Enrichment Facilities business unit. This milestone will be completed in accordance with the commitments detailed in a letter dated June 2, 1997.
- Accomplish ES&H-assigned work in a manner that is protective of the workers, the public, and the environment. Work will be measured by the following elements: a) environmental notices of violation, b) Nuclear Safety Violation Index, c) DOE Safety Index, and d) environmental permit violations. ES&H activities currently being performed are considered those necessary to maintain current levels of ES&H compliance or to prevent increases in ES&H risks.

3.2.3 *Ohio Field Office*

ES&H commitments are described for the three major Ohio Field Office sites: Fernald, WVDP and Miamisburg Environmental Management Project (Mound). The Ashtabula and Columbus Environmental Management Projects both operate under Nuclear Regulatory Commission (NRC) oversight and meet the ES&H requirements of the regulator.

3.2.3.1 Fernald Environmental Management Project

FY 1998 Major ES&H Commitments:

- Provided the safety and health resources necessary to accomplish all site projects.
- Completed waste pit site preparation.
- Started waste placement in On-Site Disposal Facility including:
 - Cell 1 placement, Cell 2 liner, Cell 3 excavation.
 - Haul road and leachate system complete.
- Completed inactive flyash pile excavation.
- Completed safe shutdown at Plant 2/3 and Plant 8.
- Completed D&D of Plant 1 and Boiler Plant D&D 95-percent completed.
- Conducted operational readiness review for enriched restricted materials.
- Implemented action tracking system and prepared Type B investigation corrective action plan for leaking white metal box.

FY 1999 Major ES&H Commitments:

- Conduct ISMS safety management implementation team review (scheduled for January 1999).
- Complete placement of 1-foot protective layer in the On-Site Disposal Facility Cell #2.
- Load out first railcar of Waste Pit material.
- Issue notice to proceed for Plant 5 and Plant 6 D&D.
- Complete Plant 9/Thorium Complex D&D.
- Complete Plant 6 safe shutdown.
- Complete installation of Cell #3 clay liner.
- Complete thorium legacy waste project.
- Turnover Buildings 64 and 65 to D&D subcontractor.
- Complete construction and receive authorization to operate sludge removal system.
- Initiate excavation of the contaminated South Field.

3.2.3.2 West Valley Demonstration Project

FY 1998 Major ES&H Commitments:

- Developed and submitted a Safety Management System description to the DOE Ohio Operations Office (OH) for approval.

- Completed validation of the WVDP ISMS consistent with the DOE-approved validation plan in March 1998. Verified by OH in July 1998.
- Developed an Authorization Agreement to establish clearly the terms and conditions under which West Valley Nuclear Services is authorized to perform work.

FY 1999 Major ES&H Commitments:

- Continue implementation and improvement of the established ISMS while simultaneously meeting contract milestones and performance commitments.

3.2.3.3 Mound – Miamisburg Environmental Management Project

FY 1998 Major ES&H Commitments:

- Developed and implemented an ISM Policy in FY 1998, as well as an integrated safety review. An SMS description was completed and submitted to Mound.
- Conducted an Integrated Mound Facility Assessment/Chemical Vulnerability Assessment. This provided an accurate and complete identification of chemicals and hazardous materials stored at the facility or contained in equipment. It is also useful as a management and planning tool for decommissioning activities.
- Developed a Comprehensive Chronic Beryllium Disease Prevention Program that was submitted to DOE in March 1998.
- Developed Basis for Interim Operations for six of the site's seven nuclear facilities; the remaining facility had a valid Safety Analysis Report.
- Demonstrated responsiveness to Ohio EPA on all Agreement-in-Principle initiatives including data management and exchange, split sampling, fugitive dust, and emergency response.
- Made significant strides in addressing legacy waste issues including:
 - Completed a technical evaluation of the chemical inventory, recommended physical inspection of suspect storage areas to ensure safe storage and handling of chemicals, completed a Chemical Management Plan, and dispositioned 2,388 excess chemicals.
 - Completed all Site Treatment Plan milestones for mixed waste on or ahead of schedule, including characterization of cotter concentrate, gold cyanide and tributylphosphate, shipment of gold cyanide and tributylphosphate for commercial treatment and disposal; characterization of oil-contaminated florco, scintillation-contaminated florco and scintillation-contaminated trash; and identification of two scintillation waste streams.
 - Disposed of excess uranium hexafluoride (UF₆), uranium tetrafluoride (UF₄), one californium-252 source, and all excess plutonium.
 - Shipped 157,776 cubic feet of LLW, exceeding the performance milestones for the year.
 - Evaluated alternate paths forward for TRU waste.

FY 1999 Major ES&H Commitments:

- Meet specific goals and objectives in the Mound Annual ES&H Plan established for industrial safety and health, radiological controls, environmental safeguards and compliance, fire services, and emergency services.
- Continue implementation of the ISMS.
- Complete corrective actions in an Emergency Management and Fire Protection Program Implementation Plan.

3.2.4 Richland Operations Office – Hanford Site**FY 1998 Major ES&H Commitments:**

At the Hanford site, 113 ES&H commitments were planned for completion in FY 1998. The overall year-end status of these milestones and commitments is summarized in Table 3-2 by project mission area. Of the total 113 FY 1998 ES&H execution commitment milestones, 89 (79 percent) were completed on or ahead of schedule, 6 (5 percent) were completed behind schedule, 8 (7 percent) were carried over to FY 1999, and 10 (9 percent) were deferred or deleted from the FY 1998 baseline by change control. Six milestones were carried over from FY 1997 and three Environmental Restoration Project Tri-Party Agreement (TPA) Milestones scheduled for completion beyond FY 1998 were completed in FY 1998. Included in ES&H execution commitments are major and interim TPA milestones, DNFSB recommendation commitments, and regulatory milestones.

Table 3-2. Summary Year-End Status of Fiscal Year 1998 Environment, Safety and Health Commitments by Hanford Site Project Mission Area

Project Mission Area	Number of Milestones ¹					
	A/S	O/S	B/S	C/O	Revise ²	Total
Tank Waste Remediation System	16	14	4	6	0	40
Waste Management	1	1	0	0	0	2
Facility Transition ³	8	1	0	2	0	10
Environmental Restoration ⁴	13	1	0	0	4	18 ^d
Science and Technology	0	0	0	0	0	0
Mission Support and Other Projects	21	13	2	0	6	42
Total	59	30	6	8	10	113

NOTES:

1. A/S = Completed ahead of schedule; O/S = completed on schedule; B/S = completed behind schedule; and C/O = carried over from previous fiscal year(s) to FY 1999.

2. Schedule revised by change control to defer or delete milestone from the FY 1998 baseline.

3. Includes spent nuclear fuel project.

4. Includes three TPA Milestones (M-93-07, 09, and 13) that were completed in FY 1998 but that were scheduled for completion beyond FY 1998.

Tank Waste Remediation System Project Commitments:

The Tank Waste Remediation System project had 40 ES&H commitments for FY 1998. Of these commitments, 30 were completed on or ahead of schedule, 4 were completed behind schedule, and 6 milestones were carried over for completion in FY 1999 or later. TPA Milestone M-41-17, scheduled for completion in FY 1998, was completed in FY 1995, about 3 years early. These commitments included:

- Initiated Tank Waste Remediation System ISM phase I verification.
- Completed closure of SY Tank Farm flammable gas unreviewed safety question (Secretarial Safety Initiative SI-2L).
- Completed closure of all unreviewed safety questions for double-shell tanks and single-shell tanks (TPA Milestone M-40-09).
- Initiated hot start-up of Tank 241-C-106 sluicing system (TPA Milestone M-45-03A and DNFSB 93-05).
- Completed project W-030, tank farm ventilation upgrades, and started operation (TPA Milestone M-43-01 and M-43-01C).
- Completed project W-058, cross site transfer system, which provides a compliant, double-encased, cross-site transfer line (TPA Milestone M-43-07).
- Pumped over 196,000 liters (51,900 gal.) of liquids from Tanks 241-T-104, T-110, and SX-104.
- Completed ultrasonic examination of one double-shell tank.
- Completed authorization to proceed with privatization for one contractor to design and build tank waste processing facilities.

Waste Management Project Commitments:

- Completed ISMS gap analysis and Radiological Control Improvement Plan.
- Initiated operations of the Waste Receiving and Processing facility LLW and TRU waste glove box lines.
- Completed FY 1998 planned receipts of LLW/TRU waste from 324/327 Buildings and disposal of Rocketdyne bulk LLW.
- Completed NEPA requirements for stabilization of contact handled, LLMW commercial contract.
- Successfully cleaned out above-ground tanks at 340 Facility.

Spent Nuclear Fuel Project Commitments:

The spent nuclear fuel project had one ES&H commitment in FY 1998 that remains behind schedule and is a milestone carried over to FY 1999. The scope and schedule of the spent nuclear fuel project is currently being negotiated with the DOE Richland Operations Office (RL) and the regulators. These commitments included:

- Completed ISMS authorization agreement for K Basins.
- Completed 82 percent of Canister Storage Building project, versus a planned completion of 89 percent.
- Completed 71 percent of cold vacuum drying project, versus a planned completion of 88 percent.
- Completed construction of the 200 Area Interim Storage Area concrete pads.
- Completed first fuel shipment from the 327 Building.

Facility Transition Project Commitments:

The project had 10 ES&H commitments in FY 1998. Of these commitments, 9 were completed on or ahead of schedule and 1 remains behind schedule and is a milestone carried over to FY 1999. These commitments included:

- Completed Radiological Control Improvement Plan and ISMS gap analysis and implementation plan.
- Completed deactivation of B Plant and transition to surveillance and maintenance phase (TPA Milestones M-82-00, 82-05, 82-06, 82-07, 82-08 and 82-10).
- Completed decoupling of the Waste Encapsulation and Storage Facility from B Plant (TPA Milestone 82-09).
- Completed transfer of cesium and strontium material from 324/327 Buildings to the Waste Encapsulation and Storage Facility (TPA Milestone 92-04).
- Completed approved Safety Evaluation Report for Tank 241-Z-361.
- Completed 324 Facility special case waste assessment in support of 324 Facility closure (TPA Milestone 89-05).

Environmental Restoration Commitments:

The Environmental Restoration project had 18 ES&H commitments in FY 1998, of which 14 were completed on or ahead of schedule and 4 were deferred or deleted by change request.

Included in the 18 FY 1998 ES&H commitments are 3 TPA milestones scheduled for completion beyond FY 1998 that were completed in FY 1998. These commitments included:

- Removed nearly 1.1 million metric tonnes (1.2 million tons) of contaminated waste from sites along the Columbia River and transported it to the Environmental Restoration Disposal Facility.
- Processed over 1.0 billion liters (0.265 billion gallons) of groundwater; operated five groundwater pump and treat systems and a soil vapor extraction system; and decommissioned 28 wells.
- Established a multi-contractor team to address groundwater/vadose zone issues and to integrate work among Hanford Site contractors. Prepared the "Groundwater/Vadose Zone Integration Project Plan," DOE/RL-98-03, and established a panel of experts to provide technical expertise and advise on groundwater/vadose zone issues.
- Completed interim safe storage of C Reactor (TPA Milestone M-93-03). Over 80 percent of the C Reactor "footprint" was demolished and a roof enclosure was installed. Also completed 20 technology demonstrations.
- Initiated interim safe storage of F and DR Reactors 2 years ahead of schedule (TPA Milestones M-93-07, 09 and 19).
- Completed a limited scope operational readiness review and initiated demolition activities at the 233-S Plutonium Concentration Facility.
- Completed 1,716 of 1,772 end-point verifications in support of transitioning the B Plant complex to the environmental restoration project. Also supported transitioning the PUREX Plant to the environmental restoration project.
- Completed safety analysis reviews for REDOX, U Plant, 224-B, and 212-N facilities.
- Completed deactivation of N Reactor which included deactivation of 86 facilities and clean out of the 4.5 million liter (1.2 million gallons) N Fuel Basin (TPA Milestone M-16-01E).

Mission Support and Other Projects Commitments:

The mission support and other projects consist of six sub-projects. Two sub-projects, RL-OT01 mission support and RL-TP11 advanced reactor transition, had FY 1998 ES&H execution commitments. Of the 42 ES&H commitments, 34 were completed on or ahead of schedule, 2 were completed behind schedule, and 6 were deleted by change request. These commitments included:

- Completed the campaign to off-load non-usable Fast Flux Test Facility (FFTF) fuel to the 400 Area interim storage.
- Deactivated the Containment Systems Test Facility sodium systems.

FY 1999 Major ES&H Commitments:

A total of 94 ES&H commitments are planned for completion in FY 1999 as shown in Table 3-3. The 94 milestones include one DNFSB and one regulatory milestone which are also TPA milestones. One TWRS project and three Facility Transition Project TPA Milestones were completed in FY 1998. Included in ES&H execution commitments are major and interim TPA milestones, DNFSB recommendation commitments and regulatory milestones.

Table 3-3. Summary of Planned Fiscal Year 1999 Environment, Safety and Health Commitments by Milestone Type

Project Mission Area	Number of Milestones			
	TPA	DNFSB	Regulatory	Total
Tank Waste Remediation System	17	8	0	25 ¹
Waste Management	5	0	0	5
Facility Transition ^b	6	7	0	13 ²
Environmental Restoration	13	0	0	13
Science and Technology	0	0	0	0
Mission Support and Other Projects ^d	3 ^d	0	35	38 ³
Total	44	15	35	94^{1,4}

NOTES:

1. One milestone is identified as both TPA and DNFSB.

2. Includes spent nuclear fuel project.

3. One milestone is identified as both TPA and regulatory.

4. One TPA Milestone for the Fast Flux Test Facility (FFTF) Complex is funded by the Office of Nuclear Energy, Science and Technology (NE).

Tank Waste Remediation System Project Commitments:

- Approve the Tank Farms Final Safety Analysis Report and Technical Safety Requirements (DNFSB 93-05).
- Pump liquids from an additional 6 single-shell waste tanks, for a total of 124 of 149 tanks (TPA Milestone M-41-00).
- Close the criticality safety issue (TPA Milestone M-40-12).
- Characterize waste in an additional 7 waste tanks, for a total of 132 of 177 tanks (TPA Milestone M-44-00).
- Initiate retrieval of waste from high-heat Tank 241-106-C (TPA Milestone M-45-00).

Waste Management Project Commitments:

- Operate the Waste Receiving and Processing Facility Module 1. Processing of contact-handled TRU/transuranic mixed waste at the Waste Receiving and Processing Facility Module 1 will be initiated in FY 1999 (TPA Milestone M-91-02).
- Treat and dispose liquid waste from the N Basins, tank farms, and groundwater in the 200 Area Effluent Treatment Facility.
- Achieve readiness to initiate shipments of TRU waste to the WIPP.

Facility Transition Project (Spent Nuclear Fuel Only) Commitments:

- Complete construction and pre-operational test of the Canister Storage Building.
- Complete construction of the Cold Vacuum Drying Facility.
- Complete fabrication and take delivery of the first shipment of multiple canister overpacks.
- Complete fabrication of transportation system.
- Complete fuel element characterization and sludge testing.
- Complete procurement and construction of K West Basin integrated water treatment and fuel retrieval systems.
- Complete installation of multiple canister overpack handling machine in the canister storage building.
- Complete fabrication and installation of plugs and impact absorbers in the canister storage building.
- Complete design of Pressurized Water Reactor Core 2 spent nuclear fuel canister and equipment.

Facility Transition Project (Not Including Spent Nuclear Fuel) Commitments:

Included in the scope is the stabilization of the 4.4 metric tons (4.9 tons) of plutonium stored in more than 8,000 separate containers, glove boxes, tanks and piping in the Plutonium Finishing Plant and the safe and secure management of nuclear materials while awaiting final disposition:

- Complete thermal stabilization of miscellaneous plutonium materials including oxides and metals.
- Containerize majority of dispersible contaminants and remove contaminated process equipment from 324 Building B Cell.
- Stabilize plutonium-bearing solutions and polycubes at the Plutonium Finishing Plant (PFP).
- Design, procure, install and test new repackaging system.

Environmental Restoration Project Commitments:

- Complete excavation of 32 waste sites.
- Continue ISS of DR and F Reactors.
- Dispose of 491,000 metric tonnes (541,000 tons) of contaminated waste at the Environmental Restoration Disposal Facility.
- Continue monitoring and treating groundwater.
- Fully integrate Hanford groundwater and vadose zone activities.
- Complete transition of PUREX and B Plant facilities from the project Hanford management contractor to the environmental restoration contractor and start surveillance and maintenance activities.
- Continue D&D of 108-F Biology Laboratory.
- Continue D&D of 233-S Plutonium Concentration Facility.
- Continue surveillance and maintenance of waste sites and facilities.

Science and Technology Project Commitments:

- Continue base program, minimum safe surveillance, and maintenance activities in laboratory facilities; continue creating updated drawings of essential 325 Facility safety systems critical to maintenance of safety and regulatory compliance.
- Complete modification of the 325 Building radioactive liquid waste system to provide liquid waste storage and a load-out system for waste shipments to the 200 Area.
- Continue base program for waste and effluent management.
- Initiate a project to identify, characterize, and develop a risk-based priority plan ultimately aimed at remedying DOE legacy waste and contamination issues at laboratory facilities and sites in an integrated and efficient manner.

Mission Support and Other Projects Commitments:

Mission support and other projects consist of six EM-funded sub-projects/programs: Hazardous Materials and Emergency Response, mission support project, RL directed support project, Office of Radiological, Nuclear, and Process Safety Regulation of the Tank Waste Remediation System privatization contractors, advanced reactors transition project, and the landlord project. Commitments are:

- Complete implementation of the Chemical Management System
- Drain remaining sodium-potassium alloy from the 337 Building systems.
- Perform characterization surveys of radiological and hazardous materials in the Plutonium Recycle Test Reactor.

- Achieve successful startup and operation of Hazardous Materials and Emergency Response training center.

3.2.5 Rocky Flats Field Office – Rocky Flats Environmental Technology Site

FY 1998 Major ES&H Commitments

- **ISMS Implementation.** In FY 1998, RFETS had nearly completed implementing ISM through its Integrated Work Control Program. This program calls for appropriate screening, planning and execution of work from the perspective of nuclear criticality safety, fire protection, authorization basis and other safety programs. Several improvements in ES&H performance were realized as a result of ISMS implementation:
 - **Nuclear Criticality Safety.** The number of nuclear criticality infractions declined by 25 percent, and the average number of days required to close an infraction was reduced to fewer than 10 days, a greater than 50-percent improvement.
 - **Fire Protection.** The number of site fire protection program impairments or deficiencies was reduced to zero in September 1998.
 - **Authorization Basis.** Ten authorization bases were submitted, approved and implemented at the site.
 - **Beryllium Program.** DOE approved the Chronic Beryllium Disease Prevention Program established by the contractor to reduce the number of workers exposed to beryllium during decommissioning and demolition, and to limit the amount of exposure of each worker in areas of known contamination.
 - **Radiological Control.** During the past 2 years, the number of procedural violations for the radiological control program has decreased by 50 percent.
 - **Electrical Safety.** Improvements in electrical safety were validated.
 - **Emergency Management.** 26 emergency preparedness drills and 30 exercises were conducted including READY 98 that involved the participation of both state and local emergency responders.
- **Building 371 Upgrades.** A FY 1998 assessment of the adequacy of seismic facility upgrades determined that the work to achieve the safety margin enhancement is substantially complete and effective in meeting the improvements called for in DNFSB Recommendation 94-3.
- **Special Nuclear Materials Stabilization Commitment.** Partially successful in meeting milestones for Implementation of DNFSB Recommendation 94-1.
 - **Special Nuclear Material Shipment.** All planned enriched uranium shipments were completed.
 - **Plutonium Residue Processing.** Processing of residues began in FY 1998. 988 kg of salt residues, 11 kg of ash residues, and 845 kg of ash residues (sand, slag and crucible) were processed. No wet combustibles residues were processed. All categories of planned processing fell short of the FY 1998 goal. However, processing of dry repackaged residue inorganics was initiated with 3,217 kg being

completed. Characterization of residue containers was accelerated and more than 500 characterizations were performed.

- **Special Nuclear Material Liquids.** In FY 1998, two process lines in Building 371 and four in Building 771 were scheduled for draining. In Building 371, draining of both process lines was completed. In Building 771, only two lines were completely drained because of unexpected technical problems and underestimated difficulty of work accomplishment. The remaining scope will be completed in FY 1999.
- **Waste Management – Waste Shipment and Disposal.** FY 1998 plans were to ship the majority of the LLMW offsite for disposal, eliminate the majority of the site's inventory of waste chemicals, maintain a constant or decreasing inventory of sanitary and LLW, and initiate shipment of TRU and TRU mixed wastes to WIPP. All planned LLW and LLMW shipments were accomplished in FY 1998. A total of 9,196 cubic meters of radioactive waste were shipped – exceeding the planned goal by 2,000 cubic meters. No TRU or TRU mixed waste shipments were completed, because of the failure of WIPP to open as planned. Waste chemical inventories were reduced exceeding the planned performance goal (25,000 waste chemical containers were dispositioned in FY 1998).
- Environmental Restoration. Trench T-1 was cleaned up safely and on schedule.

FY 1999 Major ES&H Commitments

- **ISMS Implementation.** Complete a phase II verification of the implementation of the IWCP.
- **Beryllium Worker Protection Program.** Fully implement the Chronic Beryllium Disease Worker Protection Program compliant with the new DOE standards.
- **Special Nuclear Material Shipment.** Ship a majority of the remaining enriched uranium inventory to ORR.
- **Plutonium Residue Processing.** Implement a schedule recovery plan to accelerate residue processing. Implement direct repackaging of residues into pipe component.
- **Special Nuclear Material Liquids.** Drain all 10 remaining areas in Building 371 and 12 systems in Building 771. The piping in Building 771 will be removed as the systems are drained
- **Waste Management – Waste Shipment and Disposal.** Ship 6,274 cubic meters of LLW and LLMW. Ship non-mixed TRU waste to WIPP. Lack of storage space at RFETS may require construction of additional mixed TRU waste storage facilities by May 1999.
- **Environmental Restoration.** Several plume remediation decisions are scheduled for FY 1999 including the solar ponds plume remediation, and the East Trenches plume project. Specific commitments are to develop the characterization plan for the Industrial area, and continue characterization of the 903 Pad.

3.2.6 Savannah River Operations Office – Savannah River Site

FY 1998 Major ES&H Commitments:

ES&H Support Program Commitments

Of the ES&H-relevant support commitments, 38 were successfully completed during FY 1998. One commitment has been carried over into FY 1999 with a projected completion of March 1999. These commitments are necessary to meet annual regulatory reporting commitments, annual strategic planning, ISM implementation training and exercises. Examples of some of the major commitments are as follows:

- Completed authorization agreements for all Hazardous Category 2 nuclear facilities.
- Developed required implementation plans upon official publication of Title 10 Code of Federal Regulations Part 830 (10 830) rules for nuclear safety management and submit these implementation plans to DOE. Milestone will be calculated as effective date of rule +180 days.
- Published a corrective action plan documenting implemented and planned corrective actions for the radiological control organization for the F-Canyon Class B investigation.
- Issued a white paper describing redesigned process for verifying implementation of controls for hazards below category 1 and 2 events and plan/schedule for implementing the process.
- Incorporated required changes into appropriate company-level manuals identified by Phase 1 ISMS Report relating to better defined roles, responsibilities and horizontal integration of program requirements.

High-Level Waste Management Commitments

- Pour 200 canisters of sludge-only glass at the Defense Waste Processing Facility. Exceeded the planned commitment – a total of 250 canisters were poured in FY 1998.
- Declare in-tank precipitation readiness for restart (commitment related to DNFSB Recommendation 96-1). Commitment was not completed because of technical difficulties.
- Receive and evaporate wastes – received an estimated 570,000 gallons of HLW from H and F Canyons, received an estimated 2.7 million gallons of recycled water from the Defense Waste Processing Facility, and received an estimated 120,000 gallons of low-level liquid waste from Receiving Basins for Offsite Fuels. Evaporate approximately 2.5 million gallons of liquid from the waste. Commitment was completed.
- Processed all influent streams received at the Effluent Treatment Facility (estimated at 18 million gallons). Commitment was completed.

Infrastructure Commitments

- Implemented life safety code fire protection upgrades in H Canyon and HB Line, isolated buildings across the site, and the Savannah River Technology Center.
- Replaced or retrofitted refrigeration chillers containing chlorofluorocarbons (CFCs). Completed construction of tritium phase II, completed design and began construction of central chiller plant in F area, and completed replacement in 221-F, 772-F and 771-F facilities.
- Completed design and started construction of 221-H1 chiller.

Nuclear Materials Stabilization and Storage Commitments

- Partially successful in meeting DNFSB 94-1 milestones consistent with the operation of a two-canyon strategy. Specific related work commitments are:

F Area and H Area Stabilization Commitments

- Completion of the design and award of construction contract for the new Actinide Packaging Storage Facility – Commitments were not accomplished because of funding limitations.
- Began modifications to the 235-F Vault needed to support receipt and handling of RFETS plutonium residues.
- Restarted H-Canyon solvent extraction operations and began to dissolve approximately 90 percent of Mark-22 Fuel from the K reactor when it was shut down.
- Restarted HB-Line dissolving operations to support stabilization of plutonium (Pu-239) residues.
- Completed repackaging through the new FB-Line bagless transfer system of approximately 75 percent of the plutonium buttons scheduled for repackaging.
- Commenced preparations for restart of HB-Line Phase II (Pu Oxide Line) with submittal of authorization basis documents for approval.
- Stabilized the remaining inventory of Taiwan Research Reactor fuel and plutonium sand, slag and crucibles.
- Americium/Curium demonstration project – Commitment to vitrify americium and curium was missed because of technical difficulties with slab-type melter.

FY 1999 Major ES&H Commitments:

ES&H Support Program Commitments

SRS has identified 44 ES&H relevant commitments planned for execution during FY 1999. These commitments are necessary to meet annual regulatory reporting commitments, annual

strategic planning, ISM implementation, training and exercises, etc. Examples of some of the major commitments are as follows:

- Complete implementation of ISMS corrective actions from DOE Phase II ISMS Review of the DWPF/Tank 42.
- Lead management evaluation of SRS as program element under ISO 14001; issue closeout letter upon completion of management evaluation conducted as part of process leading to recertification of SRS under ISO 14001.
- Complete replacement fire station at C and 5 Roads.
- Complete CM walk-down and drawings for the existing fire protection sprinkler system in Building 773-A, wings B, C, E and F.

HLW Management Commitments

- H-Tank Farm – Evaporate 2.4 million gallons of waste, and implement H-Tank Farm Interim Technical Safety Requirements (TSR) Plan.
- F-Tank Farm – Evaporate 0.8 million gallons of waste, and implement F-Tank Farm Interim Authorization Basis Plan.
- Waste Removal Operations – HLW salt disposition systems engineering team will complete Phase III selection and recommend an alternative salt processing technology to DOE. The original in-tank precipitation processing was suspended in FY 1998 because of process chemistry issues, especially the excess generation of benzene (commitment related to DNFSB Recommendation 96-1).
- Waste Pretreatment – Continue sludge feed to the Defense Waste Processing Facility. Maintain safe storage of existing waste in the waste pretreatment tanks. Implement modified authorization basis for tanks.
- Vitrification – Pour a minimum of 200 canisters of sludge-only waste glass by September 30, 1999. Submit the Defense Waste Processing Facility Authorization Basis Annual Update and Unresolved Safety Questions Evaluation Report. Completed inventory of the Organic Waste Storage Tank as required by the South Carolina Department of Health and Environmental Control consent order.

Infrastructure Commitments

- Continue life safety code fire protection upgrades in separations area, isolated buildings across the site, and support facilities.
- Continue to replace or retrofit refrigeration chillers containing CFCs. Complete construction of Tritium Phase III; complete design and begin construction of central chiller plant in F-area and complete replacement in 221-F, 772-F and 771-F; and continue construction of chillers in 235-F.

Nuclear Materials Stabilization and Storage Commitments:

- Meet all DNFSB 94-1 milestones consistent with the operation of a two-canyon strategy. Specific related work commitments are:

F Area Stabilization Commitments

- Continue the stabilization of SRS's by-product sand, slag and crucible inventory.
- Begin disposition of MK-42 Fuel.
- Disposition plutonium (Pu-239) sweeping residues.
- Begin stabilization of Experimental Breeder Reactor (EBR)-II fuel.
- Begin dissolution of depleted uranium/plutonium material from Building 235-F.
- Complete rebaseline of the americium/curium solution vitrification project.
- Complete refurbishment of the portion of F Canyon needed to support americium and curium vitrification.
- Conduct FB-Line mainline campaigns to stabilize plutonium from F Canyon dissolution.
- Receive, measure and repackage RFETS sand, slag, and crucibles and other residues for stabilization.
- Begin dissolving RFETS sand, slag, and crucibles, and/or other residues.
- Begin direct metal casting of RFETS plutonium metals in FB-Line.
- Conduct repackaging of plutonium metal utilizing the FB-Line bagless transfer system.
- Complete modification to Building 235-F vault to support receipt of RFETS material and interim storage of stabilized SRS material.
- Maintain 235-F Plutonium Fuel Form Facility, Plutonium Experimental Facility, and the old and new Met Labs in a safe and environmentally sound surveillance and maintenance (cold shutdown) mode.

H-Area Stabilization Commitments

- Continue to dissolve and process SRS Mk-22 spent fuel.
- Start dissolving and processing SRS Mk-16 spent fuel.
- Safely store highly enriched uranium (HEU) solution pending a final disposition.
- Safely store plutonium (Pu-239) dissolved in HB-line for future processing to plutonium oxide.
- Continue to safely store existing neptunium (Np) solutions pending conversion to oxide.

Nuclear Material Storage Commitments:

(Note, the first receipt of RFETS plutonium is anticipated in FY 2000.)

- Begin final safety analysis activities.
- Begin execution of subcontract construction work.
- Procure plutonium stabilization and packaging system equipment.

Nuclear Material Storage Commitments, K-Area Material Storage area:

- Prepare 105-K process room for modification.
- Install facility modifications.
- Procure shipping containers for material from RFETS.
- Start Phase II design.

3.3 Site-Specific ES&H Budget Issues for the FY 2000 Budget.

The EM FY 2000 budget funding supports managing its facilities in a safe, environmentally sound, and cost-effective manner. Major issues supported in this budget request are identified, along with issues that deserve continued management attention.

Albuquerque

- The Los Alamos National Laboratory (LANL) has played an active role in stabilization (including recovery and disassembly of plutonium-239/beryllium sealed-source neutron generators) of radioactive materials under a variety of DOE programs. The program is being transferred from DP to EM in FY 1999, and requires dedicated EM funding in FY 2000.

Carlsbad

- On 5/13/98, EPA certified WIPP ready to start receiving TRU waste from Los Alamos National Laboratory. Individual site approval, required prior to commencing shipment, is proceeding. The first shipment of non-mixed TRU waste to WIPP was made on March 26, 1999. WIPP has received interim status and can receive mixed TRU waste.

Chicago

- At Argonne National Laboratory–East (ANL-E), the CP-5 Reactor D&D is reducing facility hazards and mortgage costs.
- Nuclear criticality predictability program activities in response to DNFSB Recommendation 97-2 have been unfunded at ANL-E in both FY 1998 and FY 1999. Funding should be provided in the FY 2000 budget.

- At ANL-E, the decontamination and decommissioning planning for the Zero Power Reactors (ZPR) 6 and 9 and Juggernaut Reactor facilities has been deferred until FY 2001 or FY 2002.
- At Brookhaven National Laboratory (BNL), in a memorandum of agreement negotiated in FY 1999, EM accepted the transfer of responsibility for managing stabilization and decommissioning and deactivation of the BGRR. For FY 2000, SC has committed to provide EM with an additional \$4.8 million to fund stabilization activities.

Idaho

- The most important ES&H risk management issues addressed in FY 2000 budget include:
 - Idaho Nuclear Technology and Engineering Center special nuclear materials processing.
 - Electrical utility system upgrade.
 - New Waste Calcining Facility maximum achievable control technology upgrades so that the facility can resume calcining operations.
 - Spent nuclear fuel removed from Interim Fuel Storage Facility, Building CPP 749, Test Area North, DOE dry storage facility, Building CPP 603, Fort St. Vrain, and Building CPP 666.
 - Foreign research reactor spent nuclear fuel receipts.
 - Privatized dry storage Phase I.
 - LLW and LLMW disposal.
 - TRU waste shipments.
 - Advanced mixed Waste Treatment Facility.
 - Pit 9 remediation.
 - Surplus facilities deactivation and removal of non-defense fuel from the Power Burst Facility/Materials Test Reactor.
 - Surplus Chemical Processing Plant (CPP) facilities deactivation.
- Infrastructure needs of \$200M over several years may still fall short of meeting state/federal permit regulations.
- At the target level of funding, only routine surveillance and maintenance is funded at INEEL's declared surplus facilities.

Oak Ridge

- The TSCA incinerator treats solid and liquid waste generated at the ORR (and 13 other DOE sites), and is not funded at current target budget levels. This creates a disposition problem for LLMW.
- Adequate funding for the surveillance and maintenance program to stabilize and maintain increasing deterioration of site buildings waiting for demolition and

decommissioning needs to be made available. Specific problems requiring funds include:

- repair of K-25 building roof leaks and control of the resulting issues;
- building structural damage, potential asbestos insulation damage, and indoor air quality (mold and mildew) concerns in the building vaults; and
- the upgrade and repair of building cranes that have been out of service for a number of years and are now being required for D&D or re-industrialization activities.

Ohio

- Mound is presently implementing an integrated safety management program; target funding compromises full-scale implementation.
- Mound has a significant inventory of special isotopes with no defined disposition path.
- A ROD needs to be issued by DOE for the Environmental Impact Statement (EIS) for Completion of the West Valley Demonstration Project. In addition, the State of New York needs to agree to the strategy for long-term management and site closure. The ROD for the EIS is scheduled for issuance in May 2000.

Richland

- Some limited fissile material handling has resumed at the plutonium finishing plant after handling was suspended for 16 months because of criticality safety issues. Processing of solutions will resume in FY 2000.
- Construction of facilities for the processing and storage of spent nuclear fuel have been delayed while the facilities were redesigned to meet more stringent construction standards. The removal of fuel from the K-Basins has been renegotiated with the regulators and revised milestones set approximately 30 months behind the original schedule. Hanford expects to complete final preparations for spent fuel removal in FY 2000, with removals projected to begin in November 2000.
- Beryllium was used in 43 buildings at Hanford in the past. Most of these buildings are in the 300 Area, which is actively involved in D&D. A comprehensive program needs to be initiated.
- Single-shell tank pumping efforts will continue. The site plans to begin pumping liquids from 7 additional single-shell tanks in FY 2000. Currently, pumping of 134 or 149 tanks has been completed or is in progress.
- Tank Waste Remediation System privatization is proceeding with a single contractor. Congressional funding support has been limited. The National Academy of Sciences reviewed the Tank Waste Remediation System Environmental Impact Statement and concluded that there are significant uncertainties that limit DOE in defining, characterizing and disposing of the waste. An 18- to 24-month study is being

proposed. Should the existing containment strategy for HLW be prolonged further, interim safety-basis strategies will need to be revisited.

- Material disposition decisions adopted by some sites, including Hanford, assume expansion of the Actinide Packaging and Storage Facility to accommodate stabilized nuclear material. However, current SRS budget plans call for storage of offsite materials at K-reactor, and a decision concerning alternatives to expansion of the Actinide Processing and Storage Facility is pending.

Rocky Flats

- Beryllium contamination exists in a number of site facilities (e.g., 441, 444, 707, 776/777, 779, 883, 865 and 991). The site is implementing a chronic beryllium disease prevention program. Increased budget needs may be required to ensure that D&D activities do not increase worker exposure.
- Shipping delays in FY 1998 will extend the complete removal of HEU from RFETS into FY 2000 and could affect the site's special nuclear material consolidation plan and D&D schedules.

Savannah River

- SRS commitments to the DNFSB under DOE's 94-1 revised implementation plan have been renegotiated. Activities with revised milestones for completion are: vitrification of americium and curium solutions, dissolution of Mk 16/22 spent nuclear fuel, and blending and processing of 230,000 liters of HEU into stable oxide.
- SRS continues to be faced with planned activities that exceed resources. While the site has absorbed reduced budgets in recent years, non-ES&H related infrastructure costs remain high and consume substantive budget resources. Because of declining budget resources, few efforts are in place to mitigate impacts, and the lack of contingency in current project plans is likely to further extend project schedules and increase project costs.
- Facility disposition activities are not funded in current budget plans. No production missions remain for R, P, L and C Reactors. Because these facilities (and others) have remained inactive for several years, annual budget plans continue to fund only surveillance and maintenance activities.
- The Office of Nuclear Energy, Science and Technology and the Office of Science have discontinued accepting stabilized neptunium, americium and curium. Interim storage capabilities are limited and a long-term storage and disposition strategy is lacking.
- Storage of stabilized metal and oxide from RFETS (and possibly other sites) at K Reactor in FY 2000 requires completion of safety analyses and facility modifications. An amended storage and disposition ROD was issued on August 6, 1998 to support construction activities, although materials will not be shipped unless SRS is selected as the immobilization site in the ROD for the Surplus Plutonium Disposition

Environmental Impact Statement. As the receiver site, additional material inventories at SRS will increase vulnerabilities and stress ES&H performance.

- In-tank precipitation activities have been terminated pending a thorough review of the technology. Process chemistry does not support completion of the 96-1 Implementation Plan, and in-tank precipitation restart activities are presently suspended due to high benzene generation. In-tank precipitation shortcomings are resulting in Defense Waste Processing Facility operation with little associated curie content reduction in the tank farms.
- SRS has a large quantity of depleted uranium with no defined disposition path and potential inadequate storage.
- SRS has been selected as the site for return of HEU-bearing fuel from foreign research reactors; canyon utilization studies do not include use of the canyons to separate HEU from any materials.
- The Actinide Packaging and Storage Facility is a key component of a Congressional line-item project for nuclear material storage. Plans were to use the Actinide Packaging and Storage Facility to store plutonium metal and oxide from SRS, Hanford and RFETS. Budget shortfalls in FY 1998 and FY 1999 have resulted in a decision not to award the Actinide Packaging and Storage Facility construction contract. Revised plans for an alternate to the Actinide Packaging and Storage Facility need to be developed shortly to accommodate receipt of offsite materials.
- The Savannah River Technology Center conducts applied research and development to support SRS materials management, cleanup and tritium management. Broadening the missions at the Savannah River Technology Center is being considered despite declining infrastructure. Required upgrades are not funded in FY 2000 budget.

4. OFFICE OF DEFENSE PROGRAMS (DP)

The DP FY 1998 through FY 2000 ES&H budget is distributed among the DP landlord sites and other sites as follows:

Table 4-1. DP Landlord Site ES&H Funding (Millions)

DP Site	FY 1998	FY 1999	FY 2000	FY 2000 Other CSO ¹
Kansas City Plant	\$16.4	\$19.9	\$17.9	\$0.4
Lawrence Livermore National Laboratory	\$ 60.3	\$51.5	\$40.3	\$39.4
Los Alamos National Laboratory	\$197.2	\$331.0	\$354.8	\$71.5
Nevada Test Site	\$35.7	\$35.7	\$39.4	\$1.8
Oak Ridge Y-12	\$73.7	\$54.5	\$46.9	\$2.4
Pantex	\$33.5	\$46.1	\$38.0	\$0.0
Sandia National Laboratory	\$30.4	\$48.0	\$46.1	\$22.2
Other DP Funding ²	\$66.0	\$66.5	\$62.6	N/A
Total	\$513.2	\$653.2	\$646.1	\$147.7

¹ Other CSO funding is the ES&H funding received by DP sites from all other CSOs. This amount combined with the DP ES&H funding represents the total site FY 2000 ES&H funding.

² Other DP funding (and percent of total) is distributed to AL (19%), NV (7%), OR (5%), PNNL (2%), SRS (11%), HQ (54%), and others (2%).

It should be noted that LLNL and the Y-12 Plant at ORR completed the funding of several ES&H construction projects in FY 1998, which accounts for the reduced ES&H funding at these sites beginning in FY 1999. The large increase in funding from FY 1998 to FY 1999 at LANL, Sandia National Laboratories (SNL), and the Pantex Plant (Pantex) is primarily attributable to the transition of waste management responsibility from EM to DP funding.

DP's mission is to ensure the safety, reliability, and performance of nuclear weapons without underground nuclear testing. DP maintains the nuclear weapons stockpile, including replacing limited life components and assuring an adequate supply of tritium. It also maintains the ability to reconstitute underground nuclear testing and nuclear weapons production capabilities as required to meet future national security requirements.

4.1 Environment, Safety and Health Issues and Challenges

DP has identified no significant unfunded ES&H vulnerabilities that pose risks to workers, the public, or the environment in its FY 2000 Budget. Maintaining the integrity of ES&H programs requires continued focus on the following issues:

- ***Emphasizing Accident Prevention and Risk Mitigation During Construction.*** Modernization of the nuclear weapons complex requires construction of many new facilities and upgrades to a number of existing facilities. New facilities being constructed at DP sites over the next several years include: the National Ignition Facility, Contained Firing Facility, Advanced Hydrotest Facility, Atlas Facility, X-1 Advanced Radiation Source, Process and Environmental Technology Laboratory and the Dual Axis Radiographic Hydrodynamic Test Facility. ES&H considerations need to continue to be included in all phases of bringing each of these new and upgraded facilities on-line. These phases include initial mission planning, facility design, selection of the construction contractor, actual construction of the facility, and bringing the facility on-line. If recognized in the design phase, the cost of establishing specifications that accord protection for workers during operation of these new facilities should be marginal. As potentially the most hazardous phase from an ES&H perspective, the construction phase brings with it higher costs associated with achieving desired ES&H performance. Statistically, construction workers face the greatest risk of any category of workers. The Department can achieve ES&H performance that is better than the industry average for worker injuries and accidents by assuring proper construction contractor selection and by monitoring contractor ES&H performance during construction. Adequacy of forward planning for each of these phases is a line responsibility, consistent with each contractor's ISMS.
- ***Impacts Associated with Nuclear Weapons Contract Consolidation Need to be Minimized.*** A key strategy of the Department's reconfigured nuclear weapons complex is to transition from a large production complex to a smaller and more efficient series of industrial facilities. Consolidation of production activities at these industrial facilities into a single contract offers DOE direct benefits in the form of unified program execution, management efficiency and cost savings. However, the structure and incentives of any new contract arrangement need to be centered around site and facility-specific missions and maximize the integration of operating, business and technical systems. Successful implementation requires incentivizing the integration of these systems while considering the intra- and inter-site dependencies for mission completion, improved safety performance and reduced costs.

The nuclear weapons contract consolidation has been deferred pending a further analysis of ways to improve DOE's own management organization and structure. However, the structure and incentives of any new contract arrangement need to be centered around site and facility-specific missions, and assure that the Department's expectations for ISM are met.

- **Criticality Safety Performance Needs to be Improved.** The nuclear criticality predictability program (developed in response to DNFSB 93-2) is designed to improve DOE's capability to address criticality issues. Last year, DOE established implementation strategies in support of DNFSB 97-2, which included additional recommendations and actions to further strengthen the Department's criticality safety program. However, current budget plans at some sites (i.e., ORR and LANL) indicate a shortage of resources to fully implement a complete nuclear criticality program. DP retains management responsibility; however, funding provided by EM has not been consistent with negotiated amounts. While funding commitments have been planned, competing site priorities in budget plans reveal a shortage of resources to fully implement the program. There is a need for DOE-HQ and the affected sites to establish a means to ensure that, at a minimum, actions are taken to secure stable funding to support the completion of commitments.
- **Indirect Funding Reductions.** Continued departmental pressures to reduce support costs could push the sites beyond their ability to maintain the current level of ES&H support. Reductions in indirect costs at the NTS and SNL have already raised concerns about the adequacy of ES&H support in some critical skill areas such as construction safety and emergency medical technology.
- **Excess Facilities.** DP has identified that a large number of facilities are now, or will become, excess in the next 10 years. DP has directed a team effort to assess surveillance and maintenance needs to care for these facilities and concluded that increased efforts may be appropriate. The physical condition of these facilities is likely to degrade over the next few years and, if the DP budget continues to decline for these activities, significant ES&H risks may be created.
- **Integrated Safety Management.** It is a priority for DP line management to assure effective implementation of the ISMS at all of its sites. Adequate resources should be both available and visible in assuring full implementation of ISMS.
- **Maintaining ES&H Status During Downsizing.** DOE has closed some of its former weapons industrial facilities and transferred many of the production missions to the Kansas City Plant (KCP). At the same time, the Department is downsizing the KCP operations and staffing. The KCP is an ISO 9001 (Quality Assurance) certified facility, with Voluntary Protection Program "Star" status. As the plant is downsized, funding allocations need to be adequate to preserve the ISO-9001 certification and Voluntary Protection Program Star status.
- **Plutonium and Uranium Vulnerabilities.** The highly enriched uranium (HEU) vulnerability study identified deficiencies at Y-12, and the plutonium vulnerability study identified several deficiencies at LANL, LLNL, SNL, and the Pantex Plant.
- **Nuclear Material Stabilization.** LANL is currently implementing efforts to stabilize and consolidate residues and materials in Technical Area 55 and the Chemistry and Metallurgy Research building in order to satisfy DNFSB Recommendation 94-1 as well as the recommendations of the Plutonium Vulnerability Study. LANL has stabilized more than 35 percent of the legacy plutonium inventory subject to the recommendation. As of February 28, 1998, more than 500 kilograms of plutonium as

metal have been made available for packaging in containers meeting the long-term storage standard (DOE-STD-3013-94), and more than 100 kilograms of plutonium oxide have been made available for packaging to meet the standard. More than 100 packages have been created that meet the standard and more than 200 kilograms of plutonium oxide have been recovered from residue sources.

- **Waste Management.** DP issued a waste management policy that directs, among other things, that sites not produce waste without a defined disposition path. LANL's Technical Area-55 is currently generating wastes that do not meet WIPP waste acceptance criteria and that contain HEU contaminated with plutonium.

4.2 Progress at Office of Defense Programs Sites

DP supports the management of its facilities in a safe, environmentally sound, and cost-effective manner. In addition to maintaining safe operating facilities, DP sites have made considerable progress in addressing the ES&H concerns outlined above and in meeting ES&H Commitments in FY 1998. Work planned for FY 1999 also addresses major ES&H commitments and issues. The following is a brief summary of FY 1998 and FY 1999 ES&H commitments being addressed at DP landlord sites.

4.2.1 Albuquerque Operations Office

4.2.1.1 Los Alamos National Laboratory

FY 1998 and FY 1999 Major ES&H Commitments:

- **Continue Implementation of Integrated Safety Management.** LANL is vigorously implementing ISM. The conditions and agreements necessary for operations to be initiated and conducted are clearly established and agreed upon. Lower risk operations are authorized under the prime M&O contract between the University of California and DOE. Higher risk operations are authorized under activity/facility-specific authorization agreements between LANL and DOE.
- **Address Plutonium Vulnerabilities.** Meet all milestones in the Departmental implementation plan for DNFSB Recommendation 94-1. LANL is currently implementing efforts to safely manage its plutonium inventory and implement corrective actions needed to satisfy recommendations made in DNFSB 94-1. Remediation of vulnerabilities associated with stored nuclear material is being accomplished by stabilizing the material and placing it into long-term storage according to DOE STD-3013-94.
- **Continue Upgrades to the Chemistry and Metallurgy Research Building.** A multi-year, line-item construction project is the safety upgrade of this 45-year-old facility.
- **Prepare Site-Wide Environmental Impact Statement.** Completed Final Site-Wide Environmental Impact Statement for continued operation of the LANL in FY 1999.

- ***Address Electrical Safety Deficiencies.*** LANL's electrical safety program activities include: internal standards and guidance development, design review of proposed and modified electrical installations, inspection and prioritization of electrical hazards, allocation of funds for correction of hazards, and training.
- ***Implement Improved Groundwater Management Programs.*** LANL has submitted a line-item project for FY 1999 that requests funding for the surveillance well installation project. LANL has improved its groundwater management programs despite past shortfalls in funding. In FY 1998, studies were conducted to assess tritium contamination in the deep aquifer and the need for additional surveillance wells will continue. This activity is designed to completely upgrade LANL's groundwater monitoring network by providing new wells at required locations and replacing defective wells at existing sites. This activity has been spread over a five-year period and includes drilling approximately 16 new wells to the deep aquifer and plugging and abandoning 9 existing wells.
- ***Construct a Central Health Physics Facility.*** The purpose of this project is to consolidate all of the existing health physics calibration functions in one location. The location is isolated from the general public and will prevent public exposure when high-level calibrations are performed. The facility will allow calibration of radiation protection instruments for x-rays, alpha beta, contamination, gamma rays, tritium, and neutrons. This line item project is planned to be completed in two years, \$2.9 million was appropriated in FY 1999 and an additional \$1 million has been requested for FY 2000.
- ***Address Technical Area-55 Highly Enriched Uranium Vulnerabilities.*** This issue refers to vulnerabilities addressed in the recently released "Highly Enriched Uranium Working Group Report on Environmental, Safety, and Health Vulnerabilities Associated with Department's Storage of Highly Enriched Uraniums" (DOE EH-0525, December, 1996). Additional funding is being sought. LANL will monitor and assess these vulnerabilities to ensure mitigation of any potential risks and plans to eliminate all identified vulnerabilities by the end of fiscal year 1999. Four vulnerabilities at LANL were identified as most significant. Each involves facility conditions that could lead to worker and public exposure and environmental contamination. These vulnerabilities are:
 - Natural gas line explosion at Kiva 1 Storage Facility
 - Explosion in uranium facilities caused by flammable gases
 - Lack of air filtration from the Hillside Vault
 - Inadequate seismic design of the Chemistry and Metallurgy Research Building.

4.2.1.2 Sandia National Laboratory

FY 1998 and FY 1999 Major ES&H Commitments:

- ***Address all identified ES&H risks with Available ES&H Resources.*** As SNL's total budget and staffing have declined over the last 3 years, and as overhead has taken a proportionally greater reduction to honor management commitments to reduce overhead funding, ES&H funding declined 20 to 25 percent in FY 1997, and an

additional 5 percent in FY 1998. This reduction was accommodated by consolidating three separate organizations with ES&H responsibilities into one ES&H Center. Dedicated, multi-disciplinary teams of professionals were formed to provide on-site advice and assessments, which includes identifying line responsibilities for worker safety, and staff reductions.

- ***Nuclear Safety Rule Implementation.*** Several occurrences in the past have focused additional executive management attention on 10 CFR 835 compliance. Work continued in FY 1998 on improving radiation work permits, health physics anomaly reports, lessons learned reports, self-assessments, and information systems. Funding allocations are being adjusted to shift resources to radiation protection from areas of safety and health.
- ***Site-Wide Environmental Impact Statement – New Mexico.*** DOE requested that Sandia provide technical support and funding to prepare a new site-wide environmental impact statement during FY 1997, 1998, and 1999. Indirect funding is being used for this project, which is competing with other support activities including safety and health. The Draft environmental impact statement was issued in 1999.
- ***Waste Management Transition.*** Transfer of responsibility for management of waste from EM to DP is being implemented. An equitable funding mechanism for charging the waste generators is being instituted. This encourages waste minimization and helps waste generators understand the actual cost of waste pickup and disposal in preparation for the transition to the new funding scheme.
- ***Continue Implementation of Integrated Safety Management.*** SNL has completed development of its ISMS and implementation plan, which were approved by the DOE Albuquerque Operations Office (AL) in December 1996. Implementation has included clearly defining a process for identifying and tailoring directives and standards to the hazards encountered at SNL. Also, SNL uses an expert system for linking identified hazards with the engineering controls, administrative controls, procedures, and training required by the tailored directives and standards. The Integrated Environmental, Safety, and Emergency Management System is Sandia's key tool for this process. This system is the first major software system to be used interactively by line organizations at all SNL sites. Full implementation was originally planned for completion by the end of FY 1998, but ISMS negotiations with DOE resulted in an accelerated schedule of 10/15/97 because of the importance of upgrading existing and new hazard assessments.

4.2.1.3 Pantex Plant

FY 1998 and FY 1999 Major ES&H Commitments:

- Maintaining the adequacy and currency of the Authorization Basis Documents and associated Interim Authorization Basis Documents.
- Maintaining and operating within state and federally issued permits and licenses.
- Maintaining and operating within the CFR; including the Personal Assurance Program and 10CFR830.

- Maintaining compliance with 10CFR835 and the Price Anderson Authorization Act.
- Supporting funded activities of industrial safety, industrial hygiene, radiation safety, and occupational medicine. This support is both programmatic and plant-wide in nature. It provides for continued protection of the worker from industrial hazards and includes activities augmented by the Voluntary Protection Program.
- Reducing indirect costs while maintaining superior ES&H support for the site. Important aspects of this effort include the implementation of more cost-effective radiation protection training programs and re-engineering efforts to provide more organized support to line programs.
- Conduct Weapons Integrated Safety Program (SS-21) evaluation and dismantlement schedule of eight weapons programs. This is a teamwork approach that integrates safety into the design of the dismantlement/evaluation process.
- Conduct sewage treatment quality upgrade to provide assurance that wastewater standards are met through secondary/tertiary treatment, and replacing the current open ditch system for conveyance of industrial wastewater.

4.2.1.4 Kansas City Plant

FY 1999 Major ES&H Commitments:

- ***Complete Life Safety Line-item Project.*** Modify life safety systems at the KCP that have been determined by a risk/benefit analysis to improve safety. Expected funding levels are sufficient to complete this project on schedule in FY 1999.

4.2.2 Nevada Operations Office – Nevada Test Site

FY 1998 Major ES&H Commitments:

- ***Continue Implementation of Integrated Safety Management System.*** The ISMS emphasizes line management responsibility and accountability for ES&H.
- ***138 kV Substation Modernization Project.*** This multi-year project involves replacement of all distance, over current, differential relays, circuit switches at Frenchman Flat (FF); modernization of Valley Tap (VAT); and the addition of one transfer bus at the Mercury Switching Center (MSC) on the 138 kilovolt (kV) transmission system loop at the NTS. It will also provide for the installation of a full loopwide fiber-optics communication loop at the NTS. The Mercury Switching Center and Jackass Flats substation serve as termination points for the incoming power lines from outside utilities. Completion is scheduled for FY2001.
- ***Active Underground Storage Tank Program Compliance.*** The ongoing Active Underground Storage Tank (UST) Program includes activities for maintaining regulatory files for 148 tank systems and providing oversight, sampling, and closure reporting for UST removals at the NTS. Work was accomplished to permanently close active UST systems that required cathodic protection by December 1998.

- ***Install Liner for Area 6 Device Assembly Facility Sewage Lagoon.*** Installation of geosynthetic clay liner in the primary pond at the Device Assembly Facility was completed in FY 1998.
- ***Close Inactive Septic Tank System.*** This multi-year project is funded from FY 1999 through FY 2002 and includes closure of 11 tanks containing domestic waste and identification of all tanks no longer in use, or that will become inactive in the near future.
- ***Area 23 Quonset Hut Pesticide Release.*** Pesticide container rinse area will be characterized and remediated. This is a multi-year project funded from FY 1998 through FY 2000.
- ***A-23 Former Mercury Fire Training Pit.*** Former Mercury Fire Training Pit area will be characterized and remediated. This project will be transferred from DP to EM for completion.

FY 1999 major ES&H Commitments:

- Continuation of ongoing projects from FY 1998.
- ***Renovate Existing Roadways.*** Mercury Highway is the primary access highway for any activity at the NTS, including subcritical experiments and future missions. This all-weather, paved, asphaltic-concrete road has been in service for almost 40 years. All personnel, heavy equipment, and supplies entering and/or exiting the NTS depend upon this access route. The pavement surface has severely deteriorated because of age, ground motion from underground nuclear events, and heavy truck traffic. Trucks frequently carry loads that far exceed normal highway limits, i.e., H-20 highway wheel-loading. Mercury Highway has been identified as a safety issue regarding the transport of special nuclear material and high explosives. The protection of workers and the environment, by addressing the issue before accidents can occur, is consistent with the DOE Secretary's direction. In addition, Environmental Management has declared that their program depends heavily of the use of this road for both its low level waste (LLW) management program and environmental restoration activities. LLW shipments from various DOE sites across the US come to the NTS Area 5 and Area 3 utilizing this road.
- ***Area 6 CP-1 Heating Oil Release.*** Fuel oil from the pressurized line from UST No. 6-CP-1 leaked into the soil and must be characterized to determine proper cleanup requirements. The corrective action plan and corrective action will be performed in FY 2000. The Closure Report will be completed in FY 2001.
- ***Area 3 Blow Out Preventer Shop/Postshot Pad.*** Solvents and hydrocarbons used to clean equipment were discharged into a well/sump and must be characterized to determine proper cleanup requirements. FY 2000 work includes planning, support for field investigation activities, and review of the Corrective Action Investigation Plan, Health and Safety Plan and Corrective Action Decision Document. The corrective action plan and corrective action will be performed in FY 2000, and the closure report will be completed in FY 2001.

- **A-23 Fleet Operations Steam Cleaning Discharge Area.** Steam cleaning effluent discharge area will be characterized and remediated. This project will be transferred from DP to EM for completion.
- **Area 12 Underground Storage Tank 12-16-2 Waste Oil Release.** Waste oil containing solvents from leaking UST No. 12-16-2 must be characterized to determine proper cleanup requirements. The corrective action plan and corrective action will be performed in FY 2000. The closure report will be completed in FY 2001.

4.2.3 Oakland Operations Office – Lawrence Livermore National Laboratory

FY 1998 Major ES&H Commitments:

- **Laboratory's Integrated Safety Management Systems.** The LLNLs ISMS goal is to perform work safely in a manner that ensures adequate protection for employees, other workers, the public, property, and the environment. This system is applied to activities involving high-tech hazards such as ionizing radiation, aviation, lasers, pathogens, high explosives, fissile materials, and high pressure. It is also used to control hazards more routinely encountered in the workplace such as ergonomics, falls, electrical safety, traffic safety, chemical safety, fire safety, and construction safety.
- **Implementation of Work Smart Standards.** A plan for the orderly transition from current ES&H requirements to the new work smart standards was developed consistent with current contract management practices.
- **Emergency Management.** In early FY 1998, the Deputy Secretary of Energy identified compliance issues with the new DOE Order 151.1, Emergency Management, which required attention throughout the DOE complex. LLNL committed to updating its emergency response guide by March 31, 1998, and agreed to complete compliance with the Order by September 30, 1999.
- **Focus Resources on Risk Reduction in the Workplace.** The LLNL initiated an ergonomics campaign, continued its electrical safety campaign in response to several electrical shock incidents, and adopted a risk-based reduction in the fire department staffing levels from four firefighters to three during periods of reduced risk.
- **Implement Beryllium Control Program.** The program consists of exposure evaluation and characterization, medical surveillance, and medical follow-up of those determined to be sensitized, as well as training, recordkeeping and the performance feedback aspects of DOE N440.1. There are 620 workers identified as potentially exposed to beryllium at some level. Of these, 125 are classified as being the first priority group for medical surveillance; the remaining 465 are of unknown exposure potential. DOE has initiated rulemaking to control occupational exposure to beryllium. The rule to be codified as 10 CFR 850, expected in late 1999, may significantly increase the requirements of DOE N440.1. Thus, the impact on the program is not clear at this time.

- **Address Plutonium Vulnerabilities.** Meet all DNFSB Recommendation 94-1 milestones for stabilizing and packaging all excess plutonium across the complex by May 2002. LLNL has assessed the packaging of over 95 percent of its inventory. The 94-1 program will mitigate this vulnerability completely once stabilization and packaging of all LLNL excess plutonium is completed in accordance with DOE STD-3013-96.

FY 1999 Major ES&H Commitments:

- Continue FY 1998 commitments implementation.
- Provide the necessary support for maintaining workplace monitoring sample backlogs at a reasonable level and respond to surges in workplace monitoring requirements.
- Corrective actions, which respond to the Judgement of Need from a radiological contamination incident in July of 1997, are being addressed. An open funding issue is the cost of identifying legacy waste by the generating programs. The magnitude of these costs is not yet understood but will be covered by the programs.
- Prepare supplemental environmental impact statement for the National Ignition Facility with goal of having a ROD in mid-Fiscal Year 1999.

4.2.4 Oak Ridge Operations Office – Y-12 Plant

FY 1998 and FY 1999 Major ES&H Commitments:

- **Safety Basis Upgrade.** Continue upgrade to the plant's safety basis documentation, including completion of the Basis for Interim Operation documents, and work on safety analysis reports and operational safety requirements for selected facilities. The upgrade to the safety basis documentation will take several years to complete and a prioritized schedule has been developed to direct work activities.
- **Revised Chronic Beryllium Disease Prevention Program.** Continue implementation of a revised worker protection program at the Y-12 Plant to reduce the potential for worker exposure to beryllium. This program is in accordance with DOE Notice 440.1 that directs contractors to develop and implement significant new controls for chronic beryllium disease prevention. Portions of this program are not fully funded in FY 1999.
- **Highly Enriched Uranium Vulnerability Assessment.** Continue implementation of actions developed in response to the 1997 ES&H Highly Enriched Uranium Vulnerability Assessment at the Y-12 Plant. The Y-12 Plant has developed a corrective action plan that addresses each of the vulnerabilities identified during the assessment. Numerous actions have been taken to address the assessed vulnerabilities, such as actions to upgrade the plant's safety basis documentation that reduce the potential for spills of HEU-containing materials. Actions being performed in response to the vulnerability assessment continue in FY 1998 and will be performed in FY 1999 and beyond as described in the corrective action plan.

- **Programmatic Improvements.** The site will continue programmatic improvements associated with implementation of the ISM program in FY 1999.
- **Complete Life Safety Upgrade Line-item Project.** This project upgrades and modernizes fire protection systems, electrical equipment, mechanical systems, and emergency electrical generators that provide power for critical life safety systems. It is part of a program that is intended to bring the Y-12 Plant into substantial compliance with National Fire Protection Association codes relating to life safety. This project addresses in excess of 200 buildings at the Y-12 Plant. The FY 1998 obligations provided funding to continue the transition of the new fire alarm systems and the construction of the life safety upgrades. The project will be completed in FY 2000.

4.3 DP Site-Specific ES&H Issues for the FY 2000 Budget

The DP FY 2000 budget supports managing its facilities in a safe, environmentally sound, and cost-effective manner. Major issues that are being supported in this budget request are identified, along with issues that deserve continued management attention.

Lawrence Livermore National Laboratory:

- At LLNL, management of newly generated waste may be transferred from EM to DP in FY 2000; legacy waste will continue to be managed by EM.
- Reductions in indirect funding could impact ES&H Resources. Although ES&H budgets are not directly linked to Laboratory funding, a reduction of funding to LLNL would likely result in less overhead funding. ES&H activities in the indirect area compete with other indirect activities for funding and would also likely be reduced but not necessarily in a direct relationship. Reduced indirect funding for ES&H beyond the targets would increase the ES&H risk (and associated injury/illness rates) and the likelihood of noncompliance at LLNL.
- As funding has decreased each year, it has been necessary to continually reassess environmental compliance activities to determine the optimum utilization of limited funds. For many years, LLNL has approached environmental compliance from the standpoint of maintaining a high quality program aimed at achieving a zero risk of noncompliance. Declining budgets no longer permit that approach. Movement away from zero risk to a risk-acceptance approach places the Laboratory at great risk of having noncompliant activities.

Los Alamos National Laboratory:

- At LANL, management of newly generated waste is being transferred from EM to DP in FY 1999; legacy waste will continue to be managed by EM. LANL has undertaken reengineering efforts, including implementation of full-cost recovery systems. FY 2000 budget resources for these programs are funded and the program can be accomplished.

- Excess facilities with no current or future mission have been identified at LANL (100 facilities). The maintenance backlog for these facilities is increasing and no clear disposition plans are established to address known vulnerabilities, or to prevent the creation of new vulnerabilities.
- LANL has been designated to assume the beryllium operations for the DOE complex and the site needs to develop and implement a Chronic Beryllium Disease Prevention Program to meet the requirements of DOE Notice 440.1; this activity was unfunded in FY 1999. Future resource requirements are dependent on protection levels required by the pending rule. DOE Headquarters (HQ) asserts that funding will be provided when the rule is finalized and funding requirements become clear, but the program is currently underfunded in FY 2000.
- LANL's electrical distribution system is deteriorating; electrical system upgrades are planned for 27 buildings as part of a line-item to be funded starting in FY 2000. Lower priority facilities, non-Stockpile Stewardship facilities and the 115kV offsite power supply (subject to single point failure) may be addressed using an expected \$30 million over 5 years from an infrastructure fence-off that DP has requested. DP indicated that the upgrades will take place while the facilities are occupied and operating. While apparently not a budget issue, these electrical distribution upgrades warrant attention and follow-up.

Nevada Test Site:

- The FY 2000 Budget supports continuation of the renovation of existing roadways.
- DP has identified 329 (as of 4/15/99) operational standby facilities. These facilities have no current active mission and are currently under review for disposition. Some environmental liabilities are known (i.e. asbestos and/or radiological contamination) and can be expected to increase pending funding allocated for surveillance and maintenance, and characterization. DP and EM budget (except decontamination and decommissioning) plans do not address facility disposition, although DP continues to fund surveillance and maintenance of these facilities.
- ***Area 3 Septic System at Change House.*** Hazardous waste may have been discharged into the septic system and the area must be characterized to determine proper cleanup requirements. FY 2000 work includes the following: review the corrective action investigation plan, health and safety plan, and corrective action decision document; participate in development of the data quality objectives; provide support for field investigation activities; and provide waste management and disposal. The corrective action plan and corrective action will be performed in FY 2001. The closure report will be completed in FY 2002.
- ***Area 6 Operations Equipment Yard Remediation.*** Waste oil, and possibly solvent, discharged into the soil must be characterized to determine proper cleanup requirements. FY 2000 work includes planning, support for field investigation activities, and waste management and disposal. The corrective action plan and corrective action will be performed in FY 2000. The closure report will be completed in FY 2002.

Oak Ridge Y-12 Plant:

- Implementation strategies to address HEU vulnerabilities identified in DOE's action plan are underfunded by an estimated \$35 million. The key funding issue is the structural integrity of buildings that will no longer be part of Y-12 following "foot print reduction" of DP facilities. However, risks will remain until completion of the project.
- At Y-12, beryllium characterization efforts in inactive and legacy beryllium areas of the plant are unfunded. However, these areas will remain posted. Additional funding will be required before characterization studies can commence.
- Y-12 plans to consolidate occupied space from approximately 3 million square feet down to 1.25 million square feet over several years. Funding ES&H activities in and around facilities that are soon to become excess requires resolution; the age of the facilities are sure to present challenges from a safety management standpoint.
- ORR requires significant budget resources for implementation of activities associated with the stabilization and safe storage of U-233 (per DNFSB 97-1). An April 1998 memorandum from DP-24 indicated there was a \$6.5M shortfall in FY 1999 funding, but additional funding has been provided.

Pantex Plant:

- The safe storage of pits is consuming a finite amount of ES&H resources; a storage solution is needed that meets current requirements, including a moisture exclusion system. Two major resource-consuming efforts in 1997 left the issue of safe storage of pits unresolved.

Sandia National Laboratory

- Excess facilities with no current or future mission have been identified at SNL. The maintenance backlog for these 40 facilities is increasing and no clear disposition plans are established to address known, or to prevent the creation of new, vulnerabilities.

5. OFFICE OF SCIENCE (SC)

The SC FY 1998 through FY 2000 ES&H budget is distributed among the SC landlord sites and other sites as follows:

Table 5-1. SC Landlord Site ES&H Funding (Millions)

SC Site	FY 1998	FY 1999	FY 2000	FY 2000 Other CSO ¹
Ames Research Laboratory	\$1.9	\$2.2	\$2	\$0.2
Argonne National Laboratory – East	\$20.5	\$18.4	\$14.9	\$14.3
Brookhaven National Laboratory	\$39.5	\$39.1	\$35.4	\$6.9
Fermi National Accelerator Laboratory	\$12.4	\$14.6	\$18.8	\$0.0
Lawrence Berkeley National Laboratory	\$9.4	\$10.6	\$17.5	\$7.4
Oak Ridge National Laboratory	\$88.8	\$87.1	\$77.7	\$0.0
Oak Ridge Institute for Science and Education	\$0.3	\$0.4	\$0.2	\$0.7
Pacific Northwest National Laboratory	\$4.7	\$4.9	\$5.0	\$10.4
Princeton Plasma Physics Laboratory ³	\$8.4	\$8.1	\$8.3	\$0.5
Stanford Linear Accelerator Center	\$12.5	\$12.1	\$12.4	\$0.2
Thomas Jefferson National Accelerator Facility	\$2.9	\$3.1	\$3.2	\$0.0
Other SC Funding ²	\$12.1	\$11.9	\$10.3	N/A
Total	\$213.5	\$212.4	\$205.8	\$40.6

¹ Other CSO funding is for ES&H programs received by SC sites from all other CSOs. This amount, combined with the SC ES&H funding, represents the total site FY 2000 ES&H funding.

² Other SC funding (and percent of total) is distributed to ANL-W (16%), CH (3%), EML (<1%), LANL (63%), LLNL (12%), OAK (<1%), OR (<1%), and SNL (4%).

³ Subsequent to the completion of the FY 2000-2004 ES&H Management Plan, SC approved an additional \$10M for D&D of the TFTR facility. Though not reflected in this table, SC's total planned funding at PPPL for FY 2000 is \$18.3M.

SC funds basic research to advance fundamental knowledge in science, as well as train future scientists. Research areas include basic energy sciences, magnetic fusion energy, health and environmental research, high energy and nuclear physics, and computational and technology research in mathematical, informational, and computational sciences.

5.1 Environment, Safety and Health Issues and Challenges

The hazards and risks at the SC sites are predominantly associated with environmental restoration, waste management, and general risks associated with normal operations in a laboratory environment. A number of sites have operating accelerators or irradiation capabilities that pose no significant public risk, but do require attention to worker protection from radiation and other

unusual workplace safety requirements. The sites and laboratories have environmental risks in the form of media (e.g., groundwater, soil, and surface water) contaminated with organic compounds, and radionuclides. This past year, SC activities at all of the laboratories have addressed issues raised in the BNL Action Plan.

Maintaining the integrity of ES&H programs requires continued focus on the following issues:

- **Laboratory ES&H and Infrastructure.** In FY 1998, SC implemented an integrated ES&H and infrastructure planning process to link budget formulation and execution in these two areas. This process delineated expectations for the conduct of ES&H and infrastructure management activities in FY 1998 and FY 1999 and was used during the FY 2000 budget process at SC single-purpose and multi-program laboratories. This process will be continued in future budget formulation and execution activities.
- **Continuing ES&H Resource Needs.** Limited funding to address compliance issues and select improvement activities has impacted several laboratories. Virtually all multi-program laboratories have significant ES&H and infrastructure backlogs. Some planned and funded ES&H activities have been delayed, stretched out into multiple years, or deferred, although overall levels of risk remain acceptable. SC relies on a few line-item projects, modest general plant project funding, and site overhead funding to address most ES&H and infrastructure projects. In many cases, the growth of backlog items exceeds available funding. The Oak Ridge National Laboratory (ORNL) has one of the most significant backlogs of unfunded compliance and improvement activities. Notably, the safety analysis report upgrade program at ORNL is deferred due to a lack of available funds. In most cases, laboratories have attempted to reduce levels of effort and continue all operations at their facilities while continuing to meet ES&H requirements.
- **Excess Office of Science Facilities.** SC may not be able to afford to maintain its facilities under anticipated funding conditions. Some facilities are approaching the end of their useful life. Decontamination and decommissioning projects may be deferred and surveillance and maintenance activities will be required to prevent deterioration and to control health and physical hazards prior to either facility transfer to EM for decontamination and decommissioning, or availability of SC funds to decontaminate and decommission facilities not scheduled for transfer. At Pacific Northwest National Laboratory (PNNL) 53 facilities have been physically removed or transferred to a new operator. Thirty-six buildings are now in standby and 9 more will be vacated by FY 2002. PNNL's approach to excess facilities is to place them in a cold shutdown condition where minimal (e.g., annual) monitoring and surveillance and maintenance are required. At the Princeton Plasma Physics Laboratory (PPPL), the Tokamak Fusion Test Reactor Deuterium-Tritium (TFTR D-T) experiments were completed in FY 1997. TFTR has been shutdown and placed in care-taking mode. Decontamination and decommissioning will begin in FY 2000 using SC funding through the Office of Fusion Science. Congressional direction in both the FY 1998

and FY 1999 appropriations prohibited the use of funds for the purpose of restarting the High Flux Beam Reactor (HFBR) at BNL. Notably, this past year, EM and SC negotiated a memorandum of agreement for the transfer of project responsibility for one excess facility, the BGRR, to manage the stabilization and decommissioning and decontamination work. If a decision is made to shut down a number of SC facilities, then additional funding will be needed.

- **Management Systems.** SC laboratories are making progress in implementing effective and efficient management systems. PNNL reengineered ES&H management at the site by developing and implementing a standards based management system to ensure that ES&H was designed into the work processes and that management systems are interactive and contribute to the laboratory mission and objectives. Through a standards based management system, PNNL has implemented the intent of the new DOE ES&H contract clause and ISM at the benchtop level, and the laboratory is exporting this ES&H approach to other PNNL operations in FY 1998. In FY 1998 and FY 1999, the new contractor at BNL, Brookhaven Science Associates, is implementing a management systems improvement project to systematically change its business systems to integrate ES&H into its work planning processes and to institutionalize its procedures to improve management accountability. Brookhaven Science Associates is using tools based on the PNNL standards based management system to implement this ISMS.
- **Environmental Restoration.** Fermilab, Lawrence Berkeley National Laboratory (LBNL), and the Stanford Linear Accelerator Center continue remediation activities to address media contaminated with organic compounds and radionuclides. BNL has continued the interim remediation of the HFBR tritium plume. The HFBR groundwater extraction/ discharge system is still operating. BNL is addressing the findings of its facility-by-facility vulnerability review (i.e., potential to produce groundwater contamination above drinking water standards). In FY 1998, 60,000 gallons of contaminated water in the BGRR cooling water sump was pumped out and stored in tanks pending final treatment or disposal. Disposal is addressed in the FY 1999 work plan. BNL has planned general plant project funds in FY 1998 and FY 1999 to upgrade the sitewide groundwater monitoring program and to reduce sources of groundwater contamination. In FY 1998, BNL proposed a long-term strategy for groundwater remediation both on and off site. The most significant issues are related to activities at BNL including: the BGRR, the correction of EPA Phase I and II audit findings, and response to issues from the ongoing facility vulnerability review. Funds have been allocated in FY 1998 and FY 1999 to address these issues.
- **New Facilities.** The Relativistic Heavy Ion Collider is expected to become operational at BNL in FY 2000. An adjustment in ES&H requirements is expected as the facility transitions from the construction to operational phase. Top-level reviews support the Department's request for new neutron beam capability. This will be met, in part, by the Spallation Neutron Source. ES&H considerations are intended to be an integral part of the process of completing the spallation neutron source. The adequacy of plans for meeting ES&H expectations in the spallation neutron source project are reviewed by line organizations, consistent with ORNL's ISMS.

5.2 Progress at Office of Science Sites

ES&H concerns outlined above have been addressed at SC sites. Specific FY 1998 ES&H commitments have been met. Work planned for FY 1999 also addresses major ES&H commitments and issues. The following is a brief summary of FY 1998 and FY 1999 ES&H commitments being addressed at SC landlord sites.

5.2.1 Chicago Operations Office Sites

5.2.1.1 Ames Laboratory

FY 1998 Major ES&H Commitments:

- Ames Laboratory and the DOE Chicago Operations Office (CH) completed an ISM self assessment, and Ames Laboratory has initiated corrective actions that address the deficiencies related to the integration of ES&H into work planning and execution.
- Chemical management efforts have been enhanced to provide essential information for the control of hazardous chemicals.
- Fire suppression systems have been implemented. Fire detection systems have been updated and additional fire detectors will be installed in mission critical laboratory spaces.
- Radiation safety activities included activity status reviews conducted during FY 1998 for activities involving x-rays, lasers, or radiological materials.
- Planned efforts are underway for characterizing historical radiological contamination in remote spaces of Wilhelm Hall.
- A formal, documented waste management program was established. Activities included management of waste streams generated from research laboratory operations, building renovation, and waste minimization/pollution prevention. Ames Laboratory does no waste treatment and utilizes commercial disposal firms for RCRA, TSCA, and mixed waste. LLW is handled by both commercial and DOE disposal facilities.
- Environmental restoration activities at Ames Laboratory were focused on coordination of actions associated with the Chemical Disposal Site, the Fire Service Institute, and a site between a student housing area and public recreation areas.

FY 1999 Major ES&H Commitments:

- Continue FY 1998 ES&H commitment actions.
- Replace leaking shutoff valves.
- Replace electrical distribution panels in Spedding Hall.
- Upgrade heating, ventilation and air conditioning/fume exhaust system.

5.2.1.2 Argonne National Laboratory – East**FY 1998 Major ES&H Commitments:**

- ***Asbestos Management Plan.*** All scheduled remediation work was completed as planned.
- ***Building 205 G&K Wing Nuclear Facility Compliance.*** Facility improvements have been made and the current facility safety documentation is in compliance.
- ***Radio Equipment Transition.*** Significant progress was made in execution of a partnership agreement with the Illinois State Police and acquisition of central radio dispatch consoles and radios. The emergency response organizations are expected to be fully operational and in compliance with the requirements of the Emergency Telecommunications Act of 1991 during FY 1999.
- ***Relocation of the Site-wide Fire Alarm Reporting System.*** Upgrade program is ahead of schedule.
- ***Argonne National Laboratory Decontamination and Decommissioning Program.*** Building 579 waste ion exchange D&D project was completed including removing three facilities (DD073-DD075) from the open list.
- ***Decontamination of Small Facilities.*** D&D of the Building 200/205 rabbit tube was completed.
- ***Environment, Safety, Health and Infrastructure Related General Plant Projects.*** All planned projects were undertaken. In addition, several ES&H-related projects originally scheduled for completion in FY 1999 or later were undertaken. These include the medium voltage distribution system, natural gas distribution system, building roof storm water drains, storm water control and sprinkler head improvements projects.
- ***Legacy Occupational Safety and Health Administration Compliance.*** Made progress in addressing legacy OSHA compliance issues. The mechanical power transmission guarding, anti-automatic motor restart protection, and Building 306 fire stops projects were completed ahead of schedule. Upgrades to inadequate PA systems and nuclear facility fire safety upgrades were undertaken ahead of schedule.
- ***Low Level Waste.*** Stored LLW has been disposed.
- ***Environmental Exceedences.*** Eliminated significant environmental exceedences and nearing completion of actions required to meet the more stringent effluent limits of the site National Pollutant Discharge Elimination System (NPDES) permit.

FY 1999 Major ES&H Commitments:

- ***Building 205 G&K Wing Nuclear Facility Compliance.*** Continue facility improvements; the ability to support improvements may be affected by funding.
- ***Continue Relocation of the Site-wide Fire Alarm Reporting System.***

- ***Argonne National Laboratory Decontamination and Decommissioning Program.*** Planning for the 60-inch Cyclotron Facility will be accomplished in FY 1999. The final report for the Building 579 waste ion exchange D&D project will be completed. D&D activities will start for some portions of Building 301.
- ***Priority Asbestos Remediation.*** The conceptual design report for Building 362 was completed and remediation will begin in FY 1999.

5.2.1.3 Brookhaven National Laboratory

FY 1998 Major ES&H commitments:

Infrastructure and Environmental Commitments

- Conducted storage tank removal/upgrade project that included the removal and disposal of radiological storage tanks and piping from Buildings 197, 480 and 901.
- Completed stack drain collection system project that removed two existing “D” tanks in Building 801 and installed 4 new tanks.
- Completed hypochlorite conversion for potable wells.
- Conducted planned groundwater monitoring upgrades. This multi-year project continues in FY 1999.
- Initiated HFBR stack upgrades project.
- Responded to numerous site-wide facility review issues. Corrective actions continue in FY 1999.
- Continued response to EPA Phase I/II Audit. Response actions continue in FY 1999.
- Located and removed legacy carbon tetrachloride tank.

Worker Safety Enhancement Commitments

- Implemented a worker safety enhancement initiative.
- Completed implementation of a chemical inventory tracking system.

High Flux Beam Reactor Commitments

(Note: The HFBR commitments are considered necessary whether the decision is made to restart or D&D the reactor.)

- Drained water and cleaned the Spent Fuel Pool for the HFBR.
- Replaced deteriorated floor seams and penetration joints required in the HFBR confinement.
- Redesigned and installed the heavy water (D²O) primary piping system to and from the purification system in the HFBR.
- Redesigned and installed the D²O transfer piping between storage tank (FA101) and the purification system piping at the transfer pumps and some embedded piping at the primary purification system of the HFBR.

- Converted approximately 50 percent of the existing D-waste system currently below the equipment level floor to a dry contaminated floor drain system.
- Redesigned and installed the DA drains in the equipment level of the HFBR.
- Drained, capped, and abandoned in place the existing buried canal purification suction and discharge piping and the embedded clean up system supply and return piping.
- Provided for a high-level alarm for existing tanks containing hazardous fluids.
- Provided necessary structural upgrades to the HFBR control room necessary for a design basis earthquake.
- Provided necessary structural upgrades to the HFBR operations level crane to prevent its collapse onto the control room structure as a result of a design basis earthquake.

FY 1999 major ES&H Commitments

- Initiated BGRR characterization. (EM Funded.)
- Treat 32,000 gallons of tritiated water currently stored on site. (EM Funded.)
- Replace, remove or upgrade existing storage tanks and functional equivalents such as sumps, neutralization basins, etc. to meet requirements of Suffolk County Article 12.
- Continue project to correct Phase I and II facility review actions considered environmental vulnerabilities. (EM Funded.)
- Address actions deemed high priority in order to stabilize the BGRR, including underground filter characterization and relocation of Building 701 vault special nuclear materials. (EM Funded.)
- Support lab-wide initiative to develop and implement an environmental management system that meets the criteria of integrated safety management systems, ISO 14000, and emphasizes compliance assurance, community outreach and pollution prevention.
- Clean existing sanitary collection lines where surveys reveal the presence of mercury contamination.
- Entrain 10's of curies of radioactivity in soil near the Brookhaven Linear Isotope Production facility. A viscous barrier will be installed as long-term containment (tens of years).
- Remove out-of-service underground piping used to transfer radioactive liquid waste from Building 801 to Building 811. (EM Funded.)
- Replace Building 912 roofing system due to severe deterioration and roofing failures.
- Address important safety issues associated with the deactivation and stabilization of the BGRR. (EM Funded.)
- Dispose of approximately 37,000 gallons of radioactive water removed from the BGRR air cooling ductwork. (EM Funded.)
- Install groundwater monitoring wells at active BNL research and support facilities.

- Properly abandon inactive potable, process, and injection wells at the BNL site.
- Continue HFBR projects from FY 1998 and prepare an EIS for the HFBR Transition alternatives. Goal is to have a ROD in late ~~FY~~1999.

5.2.1.4 Fermi National Accelerator Laboratory

FY 1998 Major ES&H commitments:

- ***Accelerator Footprint Area Fire Protection Upgrades.*** Project is behind schedule. The schedule lapsed in the milestones established to: 1) install fire detection and alarm systems, 2) provide dampers, 3) furnish rated construction in a stairway, and 4) add sprinkler protection for the transformer area. Delays with design work hampered progress. It was determined that construction changes were necessary to create smoke barriers before installing smoke detection systems. These activities impacted the work on fire dampers and related construction for the stairway.
- ***Monitoring Well Network.*** Project is on schedule. Fermilab determined the history of all areas having potentially activated soil that could result in radionuclides reaching the groundwater. Hydrogeologic studies and monitoring well installations will proceed as recommended. Fermilab is re-evaluating the need to replace a vertical well after removing the shallow 45° well at the Neutrino fixed target area.
- ***Environmental Remediation Activities.*** Project is on a revised schedule. Fermilab anticipated completing the RCRA Facility Investigation by the end of FY 1998, however, the Illinois Environmental Protection Agency imposed some additional activities. Remediation was required at the Central Utilities Building pipe and clay tile field Solid Waste Management Unit (or SWMU 12) following the Phase II rate and extent study. More information on the SWMU 12 and the Village Machine Shop SWMU was requested by the Illinois Environmental Protection Agency. The Phase II rate and extent study for the Railhead Storage Yard was completed. Groundwater monitoring wells were installed according to the initial plan and are operational. Fermilab has submitted the Meson Hill Landfill (SWMU 13) closure documentation to the Illinois Environmental Protection Agency for approval. The soil and/or concrete have been removed near five sites contaminated with PCBs.
- ***Wilson Hall Drain Upgrade.*** project was completed.
- ***Kitchen Fire Protection Upgrade.*** project was completed.

FY 1999 Major ES&H Commitments:

- ***Accelerator Footprint Area Fire Protection Upgrades.*** Complete by July 1999. Work scope includes: 1) install fire detection and alarm systems, 2) provide dampers, 3) furnish rated construction in a stairway, and 4) add sprinkler protection for the transformer area.
- ***Monitoring Well Network.*** On schedule. Fermilab will evaluate and document whether the existing deep monitoring wells will serve to monitor the groundwater adequately.

- **Environmental Remediation Activities.** Illinois Environmental Protection Agency imposed some additional requirements. Remediation was required at the Central Utilities Building pipe and clay tile field SWMU 12. Clean up is in progress and will be completed in FY 1999. Excavation of PCB-contaminated media near the main accelerator ring will continue in FY 1999.

5.2.1.5 Princeton Plasma Physics Laboratory

FY 1998 Major ES&H Commitments:

- Conduct activities necessary to manage safety and health hazards and ensure compliance with ES&H and regulatory requirements. Safety and health hazards present at PPPL include:
 - Electrical. Magnetic fusion research requires extensive electrical energy storage and conversion.
 - Radiation. Extensive shielding, monitoring, interlocking, and procedures protect personnel from the neutron and gamma/x-ray radiation produced by the large fusion devices. Low-level ionizing radiation emanates from activated metal parts of research devices. A health physics program assures control of radioactive material.
 - The TFTR deuterium-tritium phase utilized tritium as a fuel for the experiment. TFTR caretaking activities utilize ventilation control and containments to minimize airborne radioactivity and contamination.
 - Gasses and cryogenics, gases such as hydrogen, deuterium, helium, oxygen, nitrogen, etc., and cryogenic helium and nitrogen.
 - Industrial hazards.
- Conduct infrastructure upgrades and replacements identified as having ES&H and DOE-PPPL mission implications:
 - D-site roofing systems upgrade.
 - Central chilled water plant upgrade.
 - RF, CS, MG building wall replacements.
 - Underground canal and potable water line replacement.

FY 1999 Major ES&H Commitments:

- Continue to conduct activities, as described for FY 1998, necessary to manage safety and health hazards and ensure compliance with ES&H and regulatory requirements.
- Manage safety and health hazards for the new moderately sized fusion experiment, the National Spherical Torus Experiment, constructed in FY 1998 in the D-Site Hot Cell; will be operated starting in FY 1999.

5.2.2 Oakland Operations Office Sites

5.2.2.1 Lawrence Berkeley National Laboratory

FY 1998 Major ES&H Commitments:

- **Update Radiation Protection Instrumentation.** Commitment in progress. Multi-year activity to update the stock of portable radiation protection survey instruments.
- **Underground Storage Tank Removal and Replacement.** Commitment completed. The last single-walled tank was removed and replaced with an above-ground tank in FY 1998. All remaining underground tanks meet the December 1998 regulatory standards for construction, monitoring, leak containment, and design.
- **Waste Coolant Reduction in Building 77 Machine Shop.** Commitment completed. Evaporator-condenser system installed to recover and recycle coolant at the building 77 machine shop.
- **Lead Hazard Management and Abatement.** Commitment completed. Locations of building materials with potential high lead content have been identified.
- **Electrical System Rehabilitation, Phase I.** Commitment in progress. Approximately 60 percent of the duct bank construction was complete as of November 1998.
- **Install Emergency Eyewash and Showers.** Commitment in progress. Multi-year project to install emergency shower and eyewash units as needed at chemical hazard locations.
- **Local Exhaust Ventilation Improvements.** Commitment in progress. Multi-year project to upgrade local exhaust systems used for institutional purposes to correct health and safety deficiencies.
- **Fire and Life Safety Vegetation Management.** Commitment in progress. Multi-year project to reduce the risk of wildland fires by creating fuel breaks and replanting native tree species that are more fire resistant.
- **General Plant Project Building 88 Local Exhaust System Upgrade.** Commitment completed. Construction complete on an enlarged high efficiency particulate air filtered exhaust system, exhaust fans, new filtering system to permit sampling of emissions, and upgraded ductwork.
- **Clean Air Act Compliance, Title V.** Commitment completed. A site-wide baseline survey was completed for potential air emissions sources. Air emission information is adequately documented to meet the requirements of Title V of the Clean Air Act.
- **Seismic Anchoring of Shielding Blocks.** Commitment in progress. Anchor shielding blocks for Caves 4A, 4B and 4C in Building 88.
- **Removal/Closure of Wastewater Treatment Unit.** Commitment completed. An older hazardous wastewater treatment unit was removed from the site and the area was cleaned and tested to verify that no hazardous materials remained.

FY 1999 Major ES&H Commitments:

- ***Continue Electrical System Rehabilitation, Phase IV.*** Duct bank construction, cable installation and equipment procurement to be completed in Calendar Year 1999.
- ***Reduce National Tritium Labeling Facility Emissions.***
- ***Continue Fire and Life Safety Vegetation Management.*** LBNL is situated in the hills above the City of Berkeley. Wildland fires are typical in these hills with major fires occurring on average every 10 years. Vegetation removal is necessary to lower fire risks to an acceptable level. This is a multi-year project.
- ***Continue Seismic Anchoring of Shielding Blocks.*** Install external seismic bracing on Building 88.
- ***Rehabilitate Building 77 Structure and Systems.*** Settlement of the Building 77 foundation has stressed the building's steel X-bracing system to the point that it is no longer capable of withstanding a moderate or greater earthquake. Building upgrades to its structural system are needed to restore seismic resistance and arrest foundation settlement.

5.2.2.2 Stanford Linear Accelerator Center (SLAC)

FY 1998 Major ES&H Commitments:

- ***Eliminate Illicit Storm Drain Connections.*** Work began in FY 1997 and continued through FY 1998 toward achieving compliance with the California General Industrial Stormwater Permit and SLAC's Spill Prevention Control and Countermeasures Plan. Activities were intended to protect the environment from catastrophic and chronic releases of hazardous materials. FY 1997 work completed included an inventory and survey of storm drain discharges. The information obtained from this survey led to work to eliminate illicit storm drain connections, commencing in FY 1997, and continued through FY 1998. This project is scheduled to continue through FY 2000.
- ***Seismic Assessment and Retrofits.*** A survey of the seismic strength of SLAC's buildings began in FY 1995 and will continue into FY 1999. SLAC's proximity to the San Andreas Fault exposes its personnel and property to a significant injury or damage in the event of a major earthquake. The seismic study provided for a Phase I "quick look" survey of all buildings on the site, and Phase II detailed evaluation of structures that do not pass the first phase.

FY 1999 Major ES&H Commitments:

- ***Eliminate Illicit Storm Drain Connections.*** Work continuation from FY 1998.
- ***Seismic Retrofits.*** This project continues into FY 1999 addressing structures that do not meet the established criteria for structural integrity.
- ***Label Electrical Breaker Panels.*** Initiate a 7-year project to provide improved electrical breaker panels.
- ***Fire Alarm System Upgrade.*** An upgrade of the site-wide fire alarm system is scheduled to continue in FY 1999. The current system is increasingly difficult to maintain and uses technology for which spares are no longer commercially available. The new system will be tied directly to the central dispatching stations of the Palo Alto Fire Department Dispatch Center.
- ***Upgrade the Positron-Electron Project II Emergency Lighting.*** Project will replace the nickel/cadmium battery packs serving the emergency lights in the PEP II ring with five inverter units that are installed outside the tunnel, and include new wiring from the inverter packs to the emergency lights. Approximately 10 to 70 percent of the emergency lights in the Positron-Electron Project II tunnel are non-operational, as the nickel/cadmium battery packs have failed. SLAC has recently discovered that there is a high probability that some battery packs are irradiated. Although the battery packs can be replaced, the probability that these would become irradiated is also high. Irradiated nickel/cadmium battery packs are considered mixed waste, and currently there is no known facility to which this waste can be sent.
- ***Stairway Improvements.*** Work began in FY 1998 and is expected to continue until FY 2000.
- ***SPEAR Electrical Distribution and Cable Tray Upgrade.*** Work on the upgrade to the SPEAR electrical distribution system and cable trays continues. Because the parts to be upgraded are in SPEAR, downtime is required to perform this work. The cable tray is being done with operating funds during scheduled downtimes. This work is approximately 75 percent complete. The electrical distribution system upgrade has not yet begun.
- ***Stanford Synchrotron Radiation Laboratory Beamline Cable Trays.*** Work will bring the cable trays into compliance with DOE orders, National Electric Codes, and OSHA requirements and will greatly reduce the risk of cable tray and power distribution problems, either in the form of electrical-based accidents or code compliance violations.
- ***Site Lighting and Paths.*** Work began in FY 1998 on the highest priority projects and continues in FY 1999.
- ***Replace Switchgear – Test Lab 12k.*** Work began in FY 1998 and continues in FY 1999.

5.2.3 Oak Ridge Operations Office Sites

5.2.3.1 Oak Ridge National Laboratory

FY 1998 Major ES&H Commitments:

- ***Underground Storage Tank Compliance.*** Project provides disposal of soils and residues from various tank removal/remediations and monitoring of UST sites. FY 1998 Work scope accomplished. Project will be completed in FY 1999.
- ***Electrical Occupational Safety and Health Administration Compliance.*** Corrected Risk Assessment Code 3 electrical noncompliances.
- ***3000 Area Water Isolation Valve.*** Installed motor-operated isolation valves on the primary water supply lines serving the 3000 Area.
- ***Heating, Ventilation, and Air Conditioning Upgrade, Building 9210, Unit 4.*** Completed upgrade to allow for reliable environmental air quality within the building.
- ***West End Steam Upgrade.*** Completed 82 percent of work scope to install a concrete trench duct, steam piping, compressed air piping, condensate return piping, piping insulation, and final tie-ins to existing buildings. Project will be completed in FY 1999.
- ***Upgrade the Condensate Return System.*** 35 percent of the design for the upgrade on the east end steam distribution system was completed. Project will continue in FY 1999.
- ***Purchase and Install New 3000 Scfm Rotary Screw Turbine Type Air Compressor in Building 2519.*** Design was 85 percent completed in FY 1998 and installation is scheduled for FY 1999.
- ***Installed Temporary Structure Rubb Tent for Coal Yard Treatment Facility.*** Project completed.
- ***Environmental and Life Sciences Laboratory Replacement Project.*** 10 percent of the design was completed in FY 1998. Construction is scheduled to begin in April 1999.
- ***High Flux Isotope Reactor Users Facility.*** Construction completed.
- ***Neutron Sciences Support Building.*** Structure is to be constructed adjacent to existing High Flux Isotope Reactor (HFIR) beam room. 60 percent of the design was completed in FY 1998. Construction will begin in FY 1999.
- ***Steam Plant Upgrade.*** The upgrade will add 100,000-pound boiler capacity to the steam plant. Design was 60 percent complete in FY 1998. Construction will be conducted in FY 1999.
- ***Roofing Replacement Line-item.*** In FY 1998, five buildings totaling 150,000 square feet were completed.

FY 1999 Major ES&H Commitments:

- Continue roofing replacement line-item.
- Continue steam plant upgrade boiler addition.
- Continue 3000 Scfm air compressor installation.
- ***Fire Protection Systems Upgrade.*** Upgrade selected alarm systems and alarm components, replace aged and failure-prone automatic sprinkler system deluge valves in three buildings, replace five aged dry-pipe sprinkler systems.
- Continue upgrade of condensate return project.
- Complete west end steam line.
- Continue Neutron Sciences Support Building construction project.
- Continue Environmental and Life Sciences Laboratory construction.

5.2.3.2 Oak Ridge Institute for Science and Education (ORISE)

FY 1998 Major ES&H Commitments:

- Conduct a complete assessment of fire protection systems in the ORISE facilities in accordance with DOE O 420.1. Commitment was started in FY 1998 and will be completed in FY 1999.
- Performed a full survey and abatement program on all perchloric acid laboratory hoods.

FY 1999 Major ES&H Commitments:

- Complete the assessment of fire protection systems in the ORISE facilities in accordance with DOE O 420.1.
- Obtain full operational readiness for emergency preparedness.
- provided. Fully implement all Integrated Safety Management plans within ORISE and request a DOE verification review.
- Complete radiological characterization of all facilities where funding has been

5.2.3.3 Thomas Jefferson National Accelerator Facility

FY 1998 Major ES&H Commitments:

- Completed and received DOE approval for a new environmental assessment covering the increase in beam energy from 4 GeV to 8 GeV and Free Electron Laser operations beyond the demonstration period.
- Revised the Thomas Jefferson National Accelerator Facility (TJNAF) ISMS description to reflect DOE areas of emphasis.
- Completed internal reviews as a follow-up to the DOE chemical vulnerability initiative resulting from the Hanford chemical explosion. No vulnerabilities of liquid waste storage tanks were discovered.

FY 1999 Major ES&H Commitments:

- Complete installation and checkout of tritiated liquid waste monitoring system under operational conditions.
- Confirm that all beryllium containing items and materials are identified and appropriately controlled.
- Complete ISMS verification review.

5.2.4 Richland Operations Office – Pacific Northwest National Laboratory**FY 1998 Major ES&H Commitments:**

- ***Implement Configuration Management Program.*** The basic configuration management processes have been developed. A number of initiatives are under way to further institutionalize the program. A detailed implementation plan has been prepared and includes all essential facility documents (e.g., safety analysis reports, operational safety requirements, master equipment list, master preventive maintenance list, essential drawings), a formal document control system, labeling of all essential systems, components, and equipment, and validation of as-built drawings.
- ***Expand Use of Environmental Molecular Sciences Laboratory Operations System.*** PNNL has expanded the use of an on-line operations system that was originally developed for the Environmental Molecular Sciences Laboratory (EMSL) to more than a dozen other PNNL facilities, including the Radiochemical Processing Laboratory (325 Building), and the Life Sciences Laboratory (331 Building). On-line tools include the capability to identify and communicate hazards (including radiological hazards) for all spaces within buildings, mitigate hazards through self-assessment, provide details on PNNL's standards based management system from subject areas through work practice documents, control access to workspaces, determine training requirements, and register users.
- ***Legacy Facility Hazards Baseline.*** An action plan to conduct a baseline identification of legacy pre-existing facility hazards was completed in FY 1998. This action plan includes a facility hazards inventory that will be linked to the Facility Use Agreement.
- ***Integrated Environment, Safety and Health Management.*** PNNL submitted its Integrated Environment, Safety and Health Management (IESH) program description along with the Phase 1 and Phase 2 ISMS verification report in the fourth quarter of FY 1998. The IESH program description was approved by the Manager of the DOE Richland Operations Office in October 1998. Prior to submitting the IESH program description, PNNL addressed the three Areas of Concern noted in the ISMS verification report. As part of the IESH program description approval, the Richland Operations Office noted that they believed PNNL had addressed the three Areas of Concern and that they should be considered closed.

FY 1999 Major ES&H Commitments:

- **Miscellaneous Building Surveillance and Maintenance.** Maintain the safety envelopes for radioactive materials and radiation areas within the 325 Building and miscellaneous 300 Area laboratory buildings.
- **Waste Operations and Management (Current Generation).** Maintain the infrastructure (assay, analysis, acceptance, handling, storage, packaging, and shipment) needed to disposition newly generated wastes to comply with environmental requirements.
- **Public Safety and Resource Protection.** Provide environmental monitoring in and around Hanford to help assess health and safety impacts to workers and the public. Program activities are aimed at monitoring and tracking the movement of radioactive materials in pathways leading to potential human exposure.

5.3 SC Site-Specific ES&H Issues for the FY 2000 Budget

The SC FY 2000 budget supports managing its facilities in a safe, environmentally sound, and cost-effective manner. Major issues supported in this budget request are identified along with issues that deserve continued management attention.

Argonne National Laboratory East:

- ANL-E FY 2000 budget plans do not include funding for the beryllium program required to meet the new rule (currently in draft). Shortcomings include a health testing program for current and former workers and accelerated disposition of stocks of beryllium.
- The highest priority safety and health issue that will require future funding is the completion of life safety and fire improvement activities to bring the site into compliance with regulatory and DOE directive drivers. Use of General Plant Project and the FY 2000 Phase IV Fire Safety Improvement line-item funding will continue to move ANL-E toward compliance. Available funding levels cause deferral of some projects and delay resolution of several known conditions that require attention. These include site-wide building public address system upgrades, electrical grounding, specific asbestos projects and lightning protection.
- The principal challenges facing ANL-E today stem from the normal aging of buildings and infrastructure along with changing environmental, safety and health requirements. The main thrust of the facilities management program at ANL-E involves upgrading or revitalizing of strategic buildings, utility systems, and other infrastructure. Included are modifications of existing facilities to accommodate new initiatives; to increase safety, health and environmental acceptability; to save energy; and to replace obsolete building systems that require excessive maintenance.

Brookhaven National Laboratory:

- The BGRR requires budget resources for stabilization. FY 1998 activities were funded using \$2.3M of a Congressional reprogramming of \$2.5M. In FY 1999, a Memorandum of Agreement was negotiated to transfer responsibility for the BGRR from SC to EM. EM has assumed responsibility for managing the stabilization and the decommissioning and deactivation of BGRR. FY 1999 work scope will be accomplished using part of the additional appropriation of \$5.7M to the EM program. As part of the Memorandum of Agreement, SC provided \$684K carryover funding and \$1.1M of new funding for BGRR activities in FY 1999. For FY 2000, SC has committed to provide an additional \$4.8M.

Oak Ridge National Laboratory:

- Surveillance and maintenance of excess facilities not transferred to EM is being funded out of ORNL's overhead. This drain on overhead funding prevents funding other work. The facilities will continue to degrade and surveillance and maintenance costs will rise until they can be transferred to EM and undergo decommissioning and deactivation. Transfer to EM will also be impacted by the current life-cycle asset management requirements for facility conditions prior to transfer to EM.

Pacific Northwest National Laboratory:

- FY 2000 budget plans do not support legacy facilities and their transition at PNNL. There are estimated to be approximately 89 inactive facilities at PNNL by FY 2000. Only routine surveillance and maintenance is funded.

Princeton Plasma Physics Laboratory:

- A D&D plan and associated outyear budget resources is being established for the TFTR. D&D will begin in FY 2000, and will continue through FY 2002.

6. OFFICE OF NUCLEAR ENERGY, SCIENCE AND TECHNOLOGY (NE)

NE manages programmatic activities and facilities located in Idaho, Illinois, Kentucky, New Mexico, New York, Ohio, South Carolina, Tennessee, and Washington.

The NE FY 1998 through 2000 ES&H budget is distributed among the various sites as shown in Table 6-1.

Table 6-1. ES&H Requirements Funding for Programs/Sites Operations Managed by NE (Millions)

NE Site	FY 1998	FY 1999	FY 2000	FY 2000 Other CSO
Argonne National Laboratory - West	\$3.8	\$3.7	\$4.5	\$8.3
Idaho National Engineering and Environmental Laboratory – Test Reactor Area ¹	\$10.1	\$9.1	\$10.6	\$0.0
Oak Ridge Landlord ²	\$3.9	\$0.0	\$0.0	N/A
Paducah Gaseous Diffusion Plant	\$2.3	\$2.4	\$2.5	\$2.6
Portsmouth Gaseous Diffusion Plant	\$2.5	\$2.5	\$2.5	\$3.8
Other Sites ³	\$7.7	\$19.4	\$19.4	N/A
Total	\$29.5	\$37.1	\$39.5	\$22.0
¹ Includes ES&H support funded by Naval Reactors and NE's Test Reactor Area landlord account.				
² ORR landlord budget responsibility transferred to Chief Financial Officer (CR) in FY 1999.				
³ Other NE funding and percent of total is distributed as follows: ANL-E (17%), BNL (1%), CH (2%), Hanford (FFTF) (36%), OR (5%), LANL (6%), LLNL (17%), Mound (3%), PNNL (6%), and SNL (7%).				

Consistent with the guidelines for this report, this table excludes funding for direct programmatic ES&H activities. Examples of such programs with ES&H missions include conversion of sodium to sodium carbonate for disposal as LLW; electrometallurgical treatment demonstration of sodium-bonded SNF to make it suitable for disposal in a HLW repository; and management of depleted uranium hexafluoride stored in cylinders to ensure safe storage until disposition of this material.

NE program-related indirect ES&H funding at “Other Sites” in the above table includes ANL-E, BNL, CH, LANL, LLNL, NTS, Oak Ridge Institute for Science and Education (ORISE), PNNL, and SNL. ES&H support activities for NE programs at these sites are funded through the overhead accounts to which NE contributes. These ES&H activities are managed by the landlord program CSOs of those sites/facilities. For example, the isotope production and distribution program of NE funds Mo-99 isotope production activities at LANL and the Annular Core Research

Reactor at SNL, both of which are the responsibility of DP. The NE contribution to the overhead account is used to provide needed ES&H support including NE isotope-related work at these sites.

NE no longer provides funds to operate the uranium enrichment facilities at the Paducah or Portsmouth Gaseous Diffusion Plants. The uranium enrichment facilities operation has been transferred to the United States Enrichment Corporation. DOE is responsible for environmental legacies, management of assets that are not leased to the corporation, and nuclear safety upgrades to meet NRC regulations.

6.1 Environment, Safety, and Health Issues and Challenges

The hazards and risks at the NE sites are associated with fissile material, SNF, sodium, legacy wastes, and various forms of radioactive and hazardous wastes generated during the D&D of facilities. The major ES&H challenges for NE are described below. Funding for some of these issues is not included in Table 6-1.

- ***Sodium Waste.*** Sodium removed from the sodium-cooled Fermi Reactor (77,000 gallons in 55-gallon drums) has been stored at Argonne National Laboratory-West (ANL-W). Under RCRA, this sodium cannot be disposed of in its present metallic form and must be converted to a waste form suitable for disposal. Initiation of the process to convert the metallic sodium into sodium carbonate in the Sodium Process Facility in April 1997 was a major milestone of the Federal Facility Compliance Agreement between DOE and the State of Idaho. Sodium removed from EBR-II will be processed in a similar manner for disposal as waste.
- ***Oak Ridge Water Plant Reservoir Slope Stability.*** A safety threat was posed by the instability of a steep slope supporting a four million gallon reservoir that supplies potable, industrial, and fire protection water to DOE facilities at Y-12 and ORNL as well as the City of Oak Ridge. The slope is likely to fail in a seismic event and the stability is only marginal under normal conditions. Slope stabilization was begun in FY 1998 and will be completed in FY 1999.
- ***Depleted Uranium Hexafluoride Management Program.*** 560,000 metric tons of depleted uranium hexafluoride, resulting from uranium enrichment activities, is stored in 46,422 cylinders at the three diffusion plant sites in Kentucky, Ohio, and Tennessee. The Department must provide for safe and cost-effective storage of the cylinders. A Final Programmatic Environmental Impact Statement was issued in April 1999 to assist the Department in selection of a strategy for disposition of this material, including continued storage, conversion to a usable material, or disposal. An ROD is expected in mid-FY 1999.
- ***Idaho Test Reactor Area Landlord Account.*** Significant challenges exist in cleaning up legacy waste; maintaining shutdown facilities in a safe, environmentally compliant

condition until D&D; and upgrading obsolete and aging buildings, facilities, and supporting systems to meet current state and federal ES&H standards. The upgrading of needed but obsolete and deteriorating buildings, facilities, and utility systems will be accomplished through a series of line-item construction projects in accordance with the long-range plan.

6.2 Progress at Office of Nuclear Energy, Science and Technology Sites

NE funding supports managing its facilities in a safe, environmentally-sound, and cost-effective manner. In addition to this base program, progress made by NE-funded sites in meeting FY 1998 ES&H Commitments, and those proposed in FY 1999 work plans, are described as follows:

6.2.1 Argonne National Laboratory – West

FY 1998 and FY 1999 Major ES&H Commitments:

- **Conduct Fire Hazard Analyses of Nuclear Facilities.** Formal fire hazard analyses were performed during FY 1998 to provide complete up-to-date documents. Project will be completed in FY 1999.
- **Groundwater Protection Management Program.** In FY 1998 and FY 1999, continue multi-year implementation of basic strategy for preparing and executing programs and activities required under the ANL-W Groundwater Protection Management Program.
- **Potable Water Program Plan.** Conducted a comprehensive review of existing and proposed plans and procedures to identify what exists and what plans and procedures require preparation or updating.
- **Potable Water Production Well Upgrade.**
- **Waste Water Disposal Systems.** Established a program to operate, integrity test, and document storm water, septic tank, and industrial disposal systems in accordance with generally accepted practices. This includes a review of current systems and recommendations by an outside contractor. Existing waste water conveyance systems and associated equipment will be tested for integrity and adequacy.
- **General Plant Project Waste Management.** Upgrade of the Radioactive Scrap and Waste Facility includes replacement of liners and cathodic protection for continuing compliance with RCRA permit requirements and DOE Order 5820.2a. Work on this project is the continuation of yearly scheduled work.
- **Waste Area Group 9 Remediation.** The environmental remediation program at ANL-W includes remedial investigation/feasibility studies with milestones to be met in accordance with the Federal Facility Agreement and Consent Order, and program support and database management. These are ongoing tasks and will continue until anticipated remediation completion in the year 2005.

- ***Integrated Safety Management.*** An ISM self assessment was performed in 1997. The self assessment demonstrated that ANL-W policy manuals, division structure, and work practices embody ISM guiding principles and core functions. The divisions were able to demonstrate that safety is integrated into their management practices as outlined in the Safety Management System Policy, DOE P450.4. The results of the ISM assessment questionnaires reflect that the majority of ANL-W personnel believe strong industrial safety and environmental protection programs are in place. In FY 1998 actions were taken in ISM to enhance the lessons learned program. Future actions will be taken in ISM to enhance worker safety.
- ***Revised Clean Air Act Permit Application.*** Information contained in the permit application will be used to set permit conditions for which the facilities will be held accountable by both state and federal agencies.
- ***Modification to Sodium Process Facility.*** In FY 1998, modifications to the Sodium Process Facility were completed to enable processing of legacy Fermi reactor sodium and EBR-II sodium into a waste form suitable for disposal.
- ***Sodium Processing.*** In FY 1999, complete the draining and processing of the 17,000 gallons of sodium coolant from the EBR-II secondary heat transport system.
- ***Electrometallurgical Spent Fuel Treatment.*** Complete the demonstration of the electrometallurgical spent fuel treatment technology by the end of FY 1999 using EBR-II spent nuclear fuel.

6.2.2 Idaho National Engineering and Environmental Laboratory, Test Reactor Area (TRA)

FY 1998 Major ES&H Commitments:

- ***Fire and Life Safety Improvements Line-Item Construction Project.*** Continue multi-year project that provides for the design, procurement and construction activities to correct fire protection and life safety code deficiencies at the Test Reactor Area.
- ***GPP Demineralizer Upgrade.*** This project will upgrade the demineralizer system resulting in elimination of effluent to the unlined Chemical Evaporation Pond.
- ***Environmental Compliance.*** Initiate multi-year environmental remediation activities at the INEEL Test Reactor Area facilities to correct legacy environmental issues. Work scope includes correcting previously identified environmental issues such as characterization of suspect material, removal of suspect material to a permanent repository, or elimination of suspect material through disposal.

FY 1999 Major ES&H Commitments:

- Continue multi-year fire and life safety improvement line-item construction project.
- Initiate multi-year electrical utility upgrade line-item construction project.

- Continue environmental compliance funding of environmental remediation activities at the INEEL Test Reactor Area facilities.
- Complete the GPP Demineralizer Upgrade Project.

6.3 NE Site-Specific ES&H Issues for the FY 2000 Budget

The NE FY 2000 budget supports managing its facilities in a safe, environmentally sound, and cost-effective manner. Major Issues being supported in this budget request are identified, along with issues that deserve continued management attention.

Argonne National Laboratory-West:

- Complete all sodium coolant processing.
- Complete a NEPA review and issue a DOE decision on the use of electrometallurgical technology to treat the remaining inventory of EBR-II spent fuel and other DOE sodium-bonded spent fuel.
- Upgrade to the waste water conveyance systems will be funded through the General Plant Project account. Work is scheduled to begin in FY 2000.
- Continue environmental compliance funding of environmental remediation activities at the INEEL Test Reactor Area facilities.
- The Zero Power Physics Reactor (ZPPR) is shut down, but the facility is used for a number of projects, experiments and storage of special nuclear material. Approximately 3.8 metric tons (plates and pins) of U.K. origin weapons-grade plutonium is stored in the ZPPR facility. The continued storage of this material at ZPPR poses ES&H risks and a clear disposition path has not been defined and included in budget plans

Idaho National Engineering and Environmental Laboratory, Test Reactor Area Landlord

- **Continuation of Fire Safety Improvements Line-Item Construction Project.** The principle fire safety improvements in FY 2000 will be continuing the process of upgrading fire doors, fire suppression systems, alarms systems and smoke detectors. These improvements will respond in part to the findings of the Type A Investigation conducted after the July 1998 fatality and multiple injuries caused by a malfunctioning CO₂ fire suppression system.
- **Continuation of Electrical Utility Upgrade Line-item Construction Project.** To reconfigure the 40 year old electrical utility system to meet current needs and replace aged switchgear, panels and transformers.
- **Continuation of Environmental Compliance Project funding.** Continue environmental compliance funding to correct legacy environmental issues.

- **General Plant Projects.** Upgrades to the Laboratory Radioactive Effluent System and Isolation of the Retention Basin.

Hanford Site, Fast Flux Test Facility:

- In January 1997, the Secretary of Energy delayed deactivation of the FFTF until DOE made a decision on the long-term source of tritium production in support of the weapons program. In December 1998, the Secretary selected the commercial light water reactor option for production of tritium in lieu of the FFTF. In Spring of 1999, the Department will decide whether to permanently deactivate FFTF or to conduct an environmental impact statement to consider its operation in support of a range of national research reactor requirements. The FY 2000 funding request is adequate to support minimum surveillance and maintenance of the facility. However, this funding will be inadequate for restart, permanent shutdown, or adequate maintenance of the facility in its current standby condition.

7. OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT (RW)

The RW ES&H budget is distributed among the RW landlord site and other sites as follows:

Table 7-1. RW Landlord Site ES&H Funding (Millions)

RW Site	FY 1998	FY 1999	FY 2000	FY 2000 Other CSO ¹
Yucca Mountain Site	\$29.5	\$27.9	\$25.8	\$0.0
Other RW Funding ²	\$5.3	\$7.6	\$5.9	NA
Total	\$34.8	\$35.5	\$31.7	\$0.0

¹ Other CSO funding is ES&H funding received by RW sites from all other CSOs. This amount, combined with the RW ES&H funding represents the total site FY 2000 ES&H funding.

² Other RW funding, (and percent of total) is distributed to ANL-E (2%), LANL (80%), NTS (<1%), ORISE (<1%), and HQ (12%).

7.1 Environment, Safety and Health Issues and Challenges

The S&H component of the RW budget request provides for emergency response, tunnel rescue teams, industrial safety, industrial hygiene, medical services, transportation safety, and fire protection. Budgeted environmental programs address issues regarding water and air quality, control of toxic substances, and pollution prevention.

The primary hazards facing RW activities are the industrial hygiene and industrial safety issues associated with the construction and tunneling activities at the Yucca Mountain Site. Operations at Yucca Mountain are regulated by the NRC. As a result, ES&H programs are funded to comply with NRC requirements necessary to obtain a license, as well as EPA and OSHA requirements applicable to the site work..

7.2 Progress at Office of Civilian Radioactive Waste Management Sites

7.2.1 Yucca Mountain Site Characterization Project Office

FY 1999 Major ES&H Commitment:

- Develop a draft EIS to address the potential environmental impacts from construction, operation and closure of an NRC-licensed geologic repository for the disposal of spent nuclear fuel and HLW at Yucca Mountain, Nye County, Nevada.

7.3 RW Site-Specific ES&H Issues for the FY 2000 Budget

7.3.1 *Yucca Mountain Site Characterization Project Office*

- Complete the final EIS to address the potential environmental impacts from construction, operation and closure of an NRC-licensed geologic repository for the disposal of spent nuclear fuel and HLW waste at Yucca Mountain, Nye County, Nevada.

8. OFFICE OF FOSSIL ENERGY (FE)

The FE ES&H budget is distributed among the FE landlord sites and other sites as follows:

Table 8-1. FE Landlord Site ES&H Funding (Millions)

FE Site	FY 1998	FY 1999	FY 2000	FY 2000 Other CSO ¹
Federal Energy Technology Center	\$10.2	\$12.4	\$11.3	\$0.0
Albany Research Center	\$0.3	\$1.2	\$2.0	\$0.0
National Petroleum Technology Office	\$0.0	\$0.0	\$0.02	\$0.0
Strategic Petroleum Reserves	\$6.1	\$6.0	\$6.0	\$0.0
Naval Petroleum Reserves	\$2.4	\$3.0	\$2.3	\$0.0
Other FE Funding ²	\$1.7	\$1.6	\$0.3	N/A
Total	\$20.7	\$24.2	\$21.7	\$0.0

¹ ES&H funding received by FE sites from all other CSOs. This amount, combined with the FE ES&H funding, represents the total site FY 2000 ES&H funding.

² Other FE funding (and percent of total) is distributed to AMES (<1%), ANL-E (10%), ANL-W (6%), BNL (21%), LANL (6%), LBNL (5%), LLNL (3%), NOSR's (<1%), NTS (11%), PNNL (3%), SNL (12%), and HQ (20%).

FE is a diverse organization that manages a national technology program to increase natural gas and petroleum supplies and provide cleaner, more efficient ways to use coal and natural gas to generate electricity. FE oversees the nation's emergency oil stockpile and the naval petroleum and oil shale reserves and has undergone considerable reorganization over the past several years:

- The Federal Energy Technology Center (FETC) was formed through the combination of the Morgantown Energy Technology Center and Pittsburgh Energy Technology Center.
- The Albany Research Center (Oregon) became part of DOE in 1996 when Congress abolished the Bureau of Mines.
- The Bartlesville Project Office was relocated and renamed as the National Petroleum Technology Office. The National Institute for Petroleum and Energy Research was privatized in 1998.
- The Naval Oil Shale Reserve No. 1 and the developed properties of Naval Oil Shale Reserve No. 3 were transferred to the Department of Interior in 1998.
- As part of the government's divestiture (privatization) initiative, the Naval Petroleum Reserve No. 1 was sold to the private sector in 1998.

8.1 Environment, Safety and Health Issues and Challenges

Maintaining the integrity of ES&H programs requires continued focus on the following issues:

- **Excess Facilities.** Current planning has FE retaining responsibility for excess facilities originally planned to be transferred to EM. Some of these facilities may not currently be in full compliance with federal and state regulations. Surveillance, maintenance, and assessment of these facilities will proceed slowly due to funding constraints.
- **Environmental Restoration.** FE continues to perform environmental remediation and restoration activities at a number of sites, including: the Hoe Creek, Rock Springs, and Hanna.
- **Asbestos and Lead Abatement.** Some asbestos and lead abatement activities will be deferred at the FETC sites due to funding limitations.
- **Closure of Naval Petroleum Reserve No. 3.** The Naval Petroleum Reserve No. 3 is in the process of site closure that should be completed in FY 2003. Environmental restoration and waste management operations will be increasing at this site. Closure activities include funding the removal of electrical equipment in FY 1999 and in future years. The site cannot complete closure until all structures and equipment are removed. The site will also plug and abandon underground injection control (UIC) and oil production wells that are of no further use for oil production, have casing integrity problems, pose an environmental risk due to leaking, or have been improperly plugged in the past.
- **Integrated Safety Management Implementation.** FE sites are implementing Integrated Safety Management Systems in accordance with the Secretary's ES&H policy.

8.2 Progress at Office of Fossil Energy Sites

8.2.1 Albany Research Center

FY 1998 Major ES&H Commitments:

RCRA/TSCA Commitments

- Asbestos survey of the center was initiated. Effort will continue into FY 1999.
- Chemical Inventory and Tracking Software system was implemented.
- All floor drains were plugged to prevent inadvertent drainage to the city sewer system in the event of an accident.
- Continued disposal of hazardous waste chemicals.

ES&H Management and Infrastructure Commitments

- Initiated activities to upgrade the employee notification system in the event of an accident.
- Initiated an industrial hygiene program.
- Initiated modifications of one building to convert it into a Chemical Storage Facility that will also be used for sampling and packaging of waste materials prior to disposal.
- 100 ground-fault circuit interrupt units were purchased and 10 percent were installed. An additional 300 units will be purchased in FY 1999 and installation completed.
- A site-wide machine guarding assessment was completed and improperly guarded machines taken out of service.
- ISM program was initiated and functions, responsibilities and authorities completed for all line management, staff and safety committee personnel.

FY 1999 Major ES&H Commitments:

RCRA/TSCA Commitments

- Complete a chemical hygiene and waste management program.
- Complete development and implementation of the industrial hygiene program initiated in FY 1998.
- Develop and implement a medical surveillance program.
- Develop and implement the chemical hygiene plan.
- Complete the chemical storage facility and hazardous chemical and waste handling facility.
- Conduct an indoor floor drain assessment to identify possible drain and surface water discharge to the city sewer system. Initiate any corrective actions.
- Complete asbestos survey and initiate abatement program. Assess and remove PCB contamination with completion scheduled for FY 2000.
- Maintain the continuing hazardous waste disposal program.
- Develop and begin implementation of an extensive RCRA-related ISMS plan and quality assurance.

ES&H Management Commitments

- Implement ISMS – Implementation will include processes to govern planning and work performance, training, assessment, etc.
- Formalize the process for identifying, characterizing and documenting hazards.

8.2.2 Federal Energy Technology Center

FY 1998 Major ES&H Commitments:

RCRA/TSCA Commitments

- All milestones for asbestos and lead abatement activities were completed with the exception of removal of lead paint from fire hydrants which will be completed in FY 1999.
- All planned hazardous waste materials disposal milestones were accomplished. Hazardous and residual wastes had been generated from laboratory chemicals resulting from in-house chemical inventory activities and from asbestos and lead abatement activities.
- Newly generated wastes were reduced in volume by 5 percent for the year.
- A new FETC chemical management system was developed and implemented to inventory and track chemicals. Implementation of a bar code tracking system will be accomplished in FY 1999.
- All surface water compliance activity commitments were met with the exception of installing catch basins and a drainage system along the south border of FETC's 900 Plateau Area and construction of a new salt storage shed.
- Groundwater compliance activities including well maintenance and sampling activities were executed according to schedule, including abandonment of wells at the Morgantown site.

CERCLA Commitments

- Groundwater and soil restoration activities continued successfully at the Wyoming underground coal gasification and oil shale retort sites.
- At the Hoe Creek site, construction and demonstration of test air sparging systems were completed in preparation for long-term operations.
- At the Rock Springs site, feasibility studies were initiated and pilot testing of air sparging technology begun.
- At the Hanna Site, an evaluation of the vegetation of the disturbed areas was completed.
- Continued to provide funds to a State-controlled soil and groundwater cleanup action at the Wilsonville Facility in Alabama.
- Initiated efforts to discern additional inactive waste sites. To date, no additional field work has been deemed necessary.
- On-site Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)-type activities continued at the FETC site including sampling, analysis and a risk assessment.

ES&H Management and Infrastructure Commitments

- Developed and accomplished initial implementation of FETC's ISM program.
- All planned indoor air quality fixes were accomplished including a new heating ventilation and air conditioning system for the FETC childcare facility and upgrades to Buildings 2, 16, 921 and smaller buildings. An extensive upgrade to Building 84 was initiated and will be completed in FY 1999. Real-time ambient air monitoring equipment was installed at the Pittsburgh site.
- Established several employee wellness programs within the occupational medicine program.
- Corrected life safety code deficiencies.

FY 1999 Major ES&H Commitments:

RCRA/TSCA Commitments

- Initiate all remaining high priority lead abatement and painting activities (except Building 59) in Pittsburgh and complete lead abatement and repainting of site-wide pipe bridge risers in Morgantown.
- Complete implementation of the chemical management and control system. Perform pilot of chemical bar-coding at two buildings.
- Reduce waste generation by an additional 5 percent, increase total weight of recycled material by 5 percent.
- Continue storm water quality monitoring, design drainage control and stream flow channeling requirements associated with FETC's Plateau-McElheny Road access roadway, address the issue of sanitary sewage from adjacent properties leaking into 900 Area storm sewer inlet, and evaluate results of 1-year sampling campaign to determine need for industrial wastewater pre-treatment facility.
- Implement groundwater well maintenance program, continue to monitor industrial waste pond 005, complete 1999 quarterly groundwater sampling campaign and implement groundwater geographic information system.
- Remove or encapsulate asbestos from Building 921 siding, Building 95 roof, and other scheduled construction, maintenance, and operations.

CERCLA Commitments

- Initiate, construct and implement Phase II Hoe Creek III air sparge system, continue operation of the Hoe Creek II air sparge system, and conduct periodic groundwater monitoring in the Felix I and II aquifers.
- Complete bench-scale studies and initiate pilot demonstrations at Rock Spring sites 4, 9, and 12.
- Continue to provide funding to resolve environmental liability and conduct remediations at the Wilsonville liquefaction site in Alabama.

ES&H and Infrastructure Commitments

- Add worksmart standards and best management practices to regulatory compliance database.
- Complete upgrades to most critical site ventilation and indoor air quality deficiencies, including those at Building 58 (Phase I) and Building 84 (Phase II).
- Perform chemical handling facility renovations to meet consensus standard design requirements and remove hot gas overhead pipeline.
- Incorporate ISM principles into FETC directives, and implement corrective actions to correct gaps in ISMS implementation.
- Upgrade and maintain existing fire alarm and fire suppression systems, continue to design and install central computer fire alarm system networks and interconnect site fire alarm and security systems.
- Expand toxic gas monitoring system to Building 17 and upgrade monitoring program for year 2000 compliance.

8.2.3 Naval Petroleum Reserve No. 3

FY 1998 Major ES&H Commitments:

- Conduct multi-year closure activities to plug and abandon UIC and oil production wells that are of no further use for oil production, have casing integrity problems, pose an environmental risk due to leaking, or have been improperly plugged in the past.
- Conduct multi-year activities to remove and dispose of electrical equipment including power poles, lines, transformers, etc., as field operations are reduced or eliminated. Eventually, most equipment will be removed and the field returned to natural conditions.
- Removed and disposed of gas and diesel tanks from Naval Petroleum Reserve-3. Replaced with above-ground storage tanks. Above-ground fuel tanks will be removed and site remediated when field is transferred, leased, sold or closed.
- Landfarm was closed according to Wyoming Department of Environmental Quality, Solid and Hazardous Waste Division guidelines. Future monitoring requirements will be directed by this agency.

FY 1999 Major ES&H Commitments:

- Continue multi-year closure activities to plug and abandon UIC and oil production.
- Conduct multi-year activities to remove and dispose of electrical equipment.

8.2.4 Strategic Petroleum Reserve

FY 1998 and FY 1999 Major ES&H Commitments:

- Provide necessary Environment, Safety and Health core programs and services.
- The Strategic Petroleum Reserve environmental program will work toward achieving self certification as directed by DOE, using the ISO 14001 standard.
- Provide subcontract services to fabricate/install a metal shed, protected on one side, with flat/sloped roof, not intended to meet DOE Level III Criteria, to provide weather protection for site emergency response equipment. The structure will provide storage for aqueous film-forming foam guns, pumps, emergency generator and four emergency response team trailers which are currently being stored outside.

8.3 FE Site-Specific ES&H Issues for the FY 2000 Budget

The FE FY 2000 budget supports managing its facilities in a safe, environmentally sound, and cost-effective manner. Major issues being supported in this budget request are identified.

Federal Energy Technology Center:

- Major CERCLA activities are funded at Wyoming sites including Hoe Creek, Rock Springs, and Hanna sites in Wyoming for FETC-Morgantown and various liquefaction sites for FETC-Pittsburgh.
- Major on-site RCRA remediation tasks are funded including lead and asbestos abatement, surface and ground water compliance and monitoring activities at both FETC sites; and ozone depleting substances identification and removal at the FETC-Pittsburgh site.
- Continued implementation of ISM is funded.
- Indoor air quality and ventilation activities are funded to improve air quality to meet standards of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers at both FETC sites.

Naval Petroleum Reserve No. 3:

- Technical support to complete environmental cleanup work, and to conduct archeological work to catalog prehistoric sites discovered at Elk Hills will be provided using prior-year uncosted funding. The work is being performed per agreement between DOE, Chevron, and the State of California.
- Funding supports continuation of plugging and abandonment of UIC and oil production wells, and the removal and disposal of electrical equipment including power poles, lines, transformers, etc.

9. OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY (EE)

The EE ES&H budget is distributed among the EE landlord site and other sites as follows:

Table 9-1. EE Landlord Site ES&H Funding (Millions)

EE Site	FY 1998	FY 1999	FY 2000	FY 2000 Other CSO ¹
National Renewable Energy Laboratory	\$0.9	\$0.9	\$0.9	\$0.0
Other EE Funding ²	\$5.2	\$5.5	\$5.5	N/A
Total	\$6.1	\$6.4	\$6.4	\$0.0

¹ ES&H funding received by EE sites from all other CSOs. This amount combined with the EE ES&H funding represents total site FY 2000 ES&H funding.

² Other EE funding (and percent of total) is distributed to AMES (<1%), ANL-E (10%), ANL-W (7%), BNL (5%), GO (3%), LANL (19%), LBNL (14%), LLNL (3%), PNNL (13%), SNL (20%), HQ (4%), and Y-12 (<1%).

The Golden Field Office (GO) ES&H program provides for the ES&H management of energy efficiency and renewable energy activities, primarily at the National Renewable Energy Laboratory (NREL). Through GO, EE also provides support to six DOE Regional Support Offices located in: Atlanta, Boston, Chicago, Denver, Philadelphia, and Seattle.

9.1 Environment, Safety and Health Issues and Challenges

Maintaining the integrity of ES&H programs requires continued focus on the following issues:

- **Development of Federal Employee Occupational Safety and Health Program.** GO is developing a strong program. Program development began in May 1996 and implementation is currently under way.
- **Safety Management System.** GO is developing a safety management system to define roles, responsibilities, and performance objectives of its three major areas of responsibility (i.e., Federal Employee Occupational Safety and Health Program, project management, and contract administration).

9.2 EE Site Specific ES&H Issues for the FY 2000 Budget

The EE FY 2000 budget supports managing its sole landlord facility, NREL, in a safe, environmentally sound, and cost-effective manner. There are no specific ES&H issues requiring management attention.

10. OFFICE OF MANAGEMENT AND ADMINISTRATION (MA)

The HQ ES&H budget is as follows:

Table 10-1. MA Landlord ES&H Funding (Millions)

MA	FY 1998	FY 1999	FY 1999
DOE Headquarters	\$1.1	\$1.4	\$1.4
Other MA Funding	\$0.0	\$0.0	\$0.0
Total	\$1.1	\$1.4	\$1.4

The Federal Employee Occupational Safety and Health Program is responsible for ensuring a safe and healthy work environment for approximately 6,000 HQ employees. In addition, the federal employee occupational medical program consists of two health units, one at each of the two main HQ facilities, to assist employees in maintaining and improving their health.

MA is also responsible for the maintenance and operation of the safety systems located within the government-owned and leased office space of the HQ facilities. Some of these duties include: testing and maintenance of the fire protection equipment, emergency lighting system, and drinking water system; installation and maintenance of machine guards, eyewash stations, and safety matting; and posting of protective and warning signs.

10.1 Environment, Safety and Health Issues and Challenges

Maintaining the integrity of ES&H programs requires continued focus on the following issues:

- **Asbestos Removal.** Asbestos thermal insulation material from the steam and chilled water pipes in the main Germantown facility is a hazard and requires removal. These pipes are exposed in the corridor ceilings and are subject to damage from personnel and equipment movement within the corridor. Asbestos removal in mechanical rooms and service areas also needs to be completed in both the Germantown and Forrestal buildings.

10.2 Progress at Office of Management and Administration Headquarters Buildings

FY 1999 Major ES&H Commitments:

- ***Conduct Asbestos Abatement in Forrestal Building Corridors/Ceiling Tile Replacement.*** A multi-year asbestos operations and maintenance program has been ongoing in the Forrestal Building to control and limit any exposure to the asbestos fibers. In many areas where the ceiling tiles have been removed and restored many times, the metal pan ceiling is in danger of falling on occupants seated below. In most of these areas, the asbestos has already been removed. The corridors have shown severe deterioration especially in the basement and ground floors where activity has been performed above the ceiling on a regular basis. In these areas, DOE is removing and replacing the ceiling, including the asbestos. This is being done on a “worst first” basis. This program will continue in FY 2000 and outyears.

REFERENCES

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- Ames Laboratory's Environment, Safety, Health and Infrastructure (ESH&I) Management Plan Commitments Affirmation Letter, dated November 18, 1998 and Chicago Operations Office forwarding letter dated November 23, 1998.
- Ames Laboratory FY 2000 Environment, Safety and Health (ES&H) Risk Management and Budget Analysis Summary.
- Argonne Group, Environment, Safety and Health (ES&H) commitment affirmation letter for Argonne National Laboratory East (ANL-E), dated December 11, 1998.
- Argonne National Laboratory East FY 2000 Environment, Safety and Health (ES&H) Budget and Risk Management Summary.
- Argonne National Laboratory West Environment, Safety and Health (ES&H) Management Plan Executive Summary for Fiscal Years 2000 – 2004, ANL-W ES&H Planning Report.
- Berkeley Site Office, DOE Oakland Operations Office, ES&H commitment affirmation letter for Lawrence Berkeley National Laboratory, dated November 12, 1998.
- Brookhaven National Laboratory ES&H commitment affirmation letter, dated December 4, 1998, and Brookhaven Group forwarding letter dated January 7, 1999.
- Department of Energy Annual Performance Plan for FY 2000.
- Department of Energy FY 2000 Budget Request to Congress.
- Federal Energy Technology Center, Environmental, Safety and Health (ES&H) Management Plan commitment affirmation letter, dated December 16, 1998.
- Fermi Group, ES&H commitment affirmation letter – FERMILAB.
- Fermi National Accelerator Laboratory FY 2000 ES&H Budget Plan and Risk Management Summary.
- Hanford Site Environment, Safety and Health Fiscal Year 1998/1999 Execution Commitment Summary, DOE/RL-98-84, Revision 0, December 1998, and Richland Operations Office forwarding letter dated January 14, 1999.
- Lawrence Livermore National Laboratory FY 2000 Environment, Safety and Health Budget and Risk Management Summary.
- Lockheed Martin Energy Research Corporation, FY 1999 Environment, Safety, Health, Quality and Infrastructure Management Plan for the Oak Ridge National Laboratory (ONRL/M-6616), November 1998.
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Nevada Test Site FY 1999 Environment, Safety and Health Budget and Risk Management Summary.

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Ohio Field Office FY 2000 Environment, Safety and Health Management Plan, OH-0844-98, dated May 8, 1998.

Pantex Plant FY 1999 Environment, Safety and Health Budget and Risk Management Summary.

Princeton Plasma Physics Laboratory FY 2000 Environment, Safety and Health Budget and Risk Management Summary.

Rocky Flats Environmental Technology Site – Environment, Safety and Health Commitment Affirmation – Fiscal Year 1999, dated December 21, 1998.

Rocky Flats Environmental Technology Site Fiscal Year 1998 Annual Report, October 1, 1997 – September 30, 1998.

Sandia National Laboratory FY 1999 Environment, Safety and Health Budget and Risk Management Summary.

Savannah River Operations Office Environmental, Safety and Health (ES&H) commitment affirmation letter dated November 10, 1998 with attached Savannah River Site Environmental, Safety and Health (ES&H) Commitment Affirmation for FY 1999.

Savannah River Site FY 1998 Annual Operational Plan (U) Performance Baseline Volume I Executive Summary, WSRC-RP-97-00943, dated October 1, 1997.

Savannah River Site FY 1999 Annual Operational Plan (U) Performance Baseline Volume I Executive Summary, WSRC-RP-9801333, dated October 1, 1998.

Stanford Site Office FY 1999 ES&H Execution Plan for Stanford Linear Accelerator Center, dated December 14, 1998.

Strategic Petroleum Reserve Environmental, Safety and Health (ES&H) Management Plan commitment affirmation letter, 98-ESH-085, dated October 29, 1998.

Strategic Petroleum Reserve FY 2000 Environment, Safety and Health (ES&H) Budget and Risk Management Summary.

Thomas Jefferson National Accelerator Facility ES&H commitment affirmation letter dated December 18, 1998, and Thomas Jefferson National Accelerator Facility Site Office forwarding letter dated December 28, 1998.

Y-12 Plant Lockheed Martin Energy Systems FY 2000 Environment, Safety and Health Budget Formulation Submission.